Vol. XV, No. 15 Chicago, April 15, 1909 $3.00 Per Year

# MOTOR AGE

## INDIANA OFFERS NATURAL ROAD RACE COURSE

The above photograph shows the stretch, looking south, selected for the start and finish. It is at the end of a 7.1 mile straightaway. The cross marks location of grand stand, which will angle away from the road. At this point the highway is 36.5 feet extreme width, with 15.2 feet of actual roadway. North from here to the turn it is 1.4 mile, the road being rolling in nature

CHICAGO, April 13—Having been granted a sanction for its road meet, having secured permission for the First Regiment of the Illinois National Guard to guard the course and having been granted a special dispensation in the way of classifications, the Chicago Automobile Club is prepared to run two road races June 18 and 19 which are expected to be models of their kind and a credit to the great and growing west.

The course that will be used for the contest is a kindly offering of old Dame Nature, as nearly perfect as one could expect to find in the rough in this great country where the need of good roads is just becoming apparent to the people. It is a circuit 23.6 miles in length, touching Crown Point and Lowell in Lake county, Ind., Crown Point being within 45 miles of Chicago—just an easy 2 hours run over magnificent roads. There is not a railroad on the course, not a grade that can be dignified by the name of a hill, while there are two grand straights, one nearly 9 miles in length and the other about 6 miles.

**Strang's Opinion of Course**

Judgment on this course was passed yesterday by Lewis Strang, whose racing experience covers contests not only in this country but abroad—in the French grand prix—and Strang says there is nothing like it in this country, so far as he knows.

"It is 100 per cent better than I anticipated," said Strang today after a visit to the course. "It is better than the Vanderbilt and as for the Briarcliff there is no comparison. I like it better even than Savannah. The roads are plenty wide enough for one to pass another car—that is, of course, if the driver has had experience and no one should drive in the races unless he has had experience. I should say on the whole that the roads average wider than Savannah, with the exception of two straights there. At the present time the course needs fixing up, which will improve it.

**Approaches Need Fixing**

"The approaches to the bridge are bad—they bump you hard going at speed.

This also is a photograph of the starting point, but looking north, the road going toward Crown Point, which is within 1.4 mile of this spot

One of the sensational features of the course is the S turn located between Crown Point and Cedar Lake, but which is not as dangerous as it looks

The turns are not dangerous, for there's where one is cautious anyway, while as for those straightways they are lightning fast. It simply is a question how fast a car can travel over them.

"I look for great speed in the races in June. I even expect the Cobe cup cars, lower powered than the Vanderbilt cup cars though they be, to beat the average made in the Long Island classic."

**Description of Course**

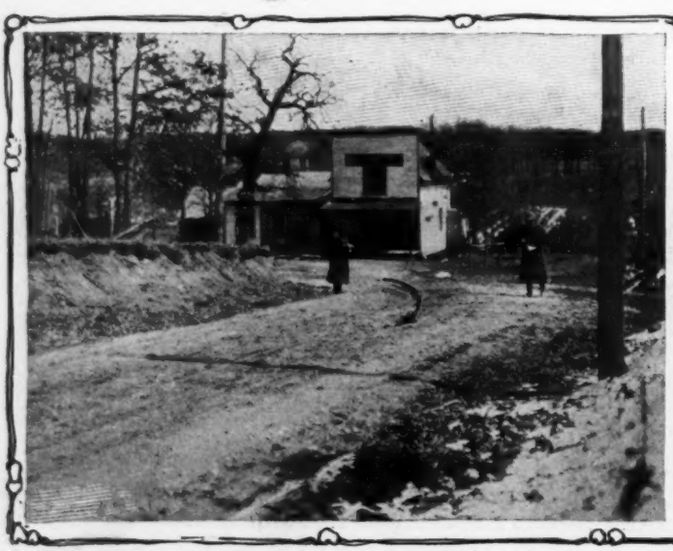
A Motor Age expedition went around the course last Saturday and found it in most promising condition despite the fact there had just been a slight fall of snow. On the way to Crown Point the roads were muddy and skiddy but out on the circuit there was hardly a trace of snow, while the highways permitted of almost any speed. The grand stands will be erected on the east leg of the course about 1½ miles from Crown Point. They will be near the end of one of the longest straightaways ever used in an American road race. From the southeastern corner of the course to the grand stand there is a stretch 7.1 miles in length without a bend in it. The roadbed is excellent and while the country through there is rolling in nature there is not a grade that should require a gear to be changed. The grand stand will be erected on the outside of the road and it is planned to provide accommodations for 10,000 people there.

Across the road will be the parking station for the cars of the sightseers. At the starting point the natural width of the road is 15.2 feet but as the road is without any crown to speak of it will be possible to broaden out the highway past the stand, it being 36.5 feet from ditch to ditch, which can either be boarded over or a new road made there. The whole of this leg runs about the same—15 feet, the ditches being generally shallow and not dangerous. From the starting line the racers will go due north for 1.4 mile on Indiana avenue, where a turn to the west will be made into East South street. Here it will be necessary to build a new road to South Main street, a stretch of ½ mile. The road there at the present is not macadam but this stretch is chosen in order to avoid going into the heart of Crown Point. It runs directly into a street which is 30 feet wide and newly made and which in turn debouches into South Court street, there being .7 mile of the 30-foot width before the road narrows to 23 feet.

**Highways Wide and Level**

From this point there is another .7 mile to the turn at the race track, the highway being wide and level. At the track it has narrowed to 17 feet and the turn west at this point is a right hand one, the turn itself being 37 feet in width. West past the race track the road runs for .7 mile, the road at this point being 16 feet in width, while the ditches are shallow. This point is 3.8 miles from the start and here begins the turns, which includes a double S that promises to become historic. First the road winds to the right, then to the left and again right, a distance of .3 mile, with the road 15 feet in width. The S crosses a solid stone culvert which is 20½ feet in width and with the road 13 feet wide crossing it, then climbs a grade of .1 mile to a sharp right turn. This probably is the steepest grade on the course, but it is far from being terrifying. Here there is 15 feet in which to negotiate the bend.

Once around it, there is a dip and at the bottom one crosses a wooden bridge which is 16 feet in width and 8½ feet across, with a ditch 9 feet deep. This probably will have to be rebuilt. One hundred feet the other side of the wooden bridge there is a stone culvert 21 feet wide, a 5½-foot ditch and the road 12 feet in width. Another wooden culvert is encountered .9 mile past the stone one. It is in poor condition and at the foot of a grade. It is 8½-feet in length and 15½ feet wide, while the ditch is shallow—only 3 feet deep. Along here the course is rolling and one comes to a sharp left turn at Ray's road house. There is 27 feet on the turn and doubtless it will be possible to cut across a lot here with a new road and thus eliminate any possible danger.



There is but one grade worthy of the name and that is near Cedar Lake. The turn is abrupt, but can be improved

Just outside of Lowell is a double turn around a cemetery. The road, however, is wide. It is the danger spot on the course

This turn is at Cedar Lake, for that body of water is within 100 feet of the road. The point also marks the beginning of the best bit of going on the circuit, there being a straight run of 5.7 miles to Lowell, the highway being hard and broad, the first half of the stretch to Lowell being 27 feet in width, counting where it is possible to run on the grass. Bridges there are a-plenty in this stretch. The first one is .3 mile from Ray's and is a stone culvert of solid construction. Half a mile on is a wooden bridge over a creek. The road crossing it narrows to 10 feet, while the bridge itself is 15 feet in width and 20 feet across. Then comes a stretch of 3 miles of magnificent going to the next stone culvert, where the road averages 15 feet in width and where there is a 7-foot ditch. The culvert is 16 feet in width. Six-tenths of a mile past this is another stone culvert with the road only 12 feet wide crossing it. The ditch is 6 feet 7 inches in depth. Half a mile south is a bridge, made of iron and with a plank floor. It is 15½ feet wide, while the road is only 11 feet in width. The length of the bridge is 25 feet and the ditch is 9.2 feet in depth. A stone culvert is found .3 mile past this point, which is 30 feet across and 16½ feet in width, with the road 16 feet wide. The surface of the water is 11 feet down. The ideal bridge is found .2 mile south of this in the shape of an iron bridge with a cement floor, a substantial structure that is 15 feet wide and 48 feet in length and with the drop to the water 12½ feet. By this time Lowell is in close proximity, the road widening out to 39 feet for a ways and then narrowing to 18 feet as it runs into the main street of the town, where there is a peculiar entrance onto the main street.

**Entrance Into Lowell**

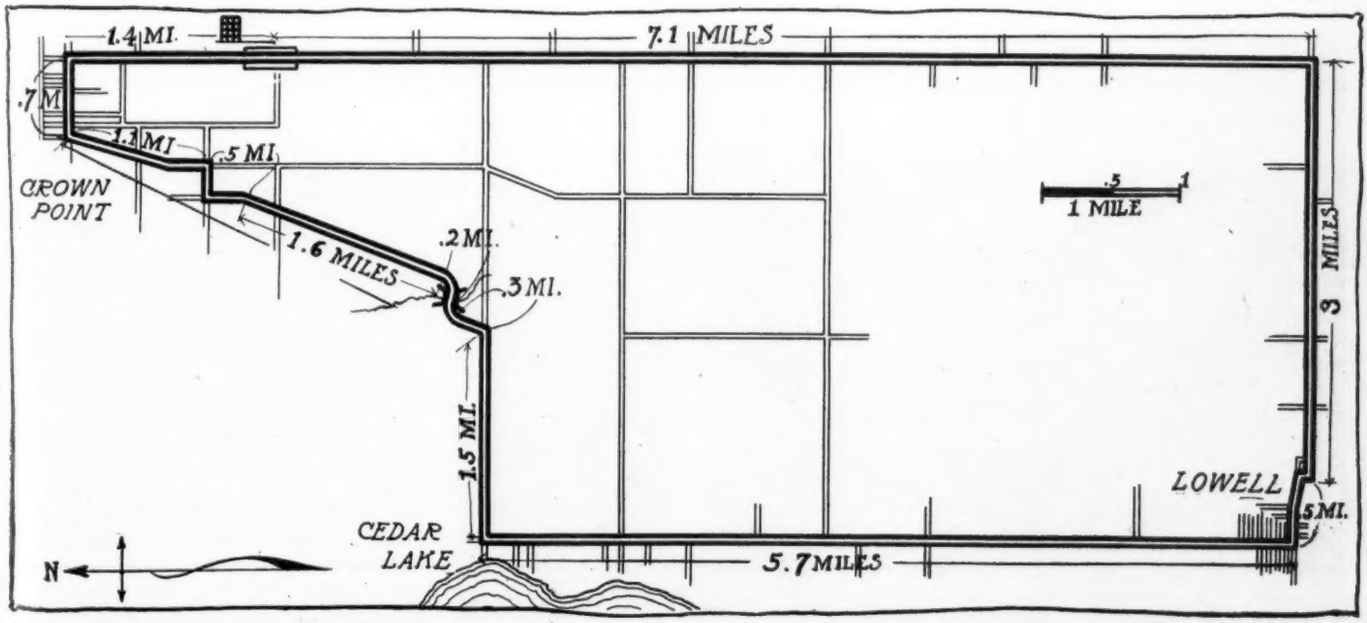
This entrance into Lowell is a queer one, the west leg running in between two buildings, making an ugly turn, but which is not as bad as it seems, for the racers run onto a street that is 49 feet in width. Here a left turn is made and the trail goes east. The 49-foot width is found for .1 mile, then the road narrows to 26 feet. A trifle over .6 mile one comes to the double turn at the cemetery, where the width of the turn is 25 feet, with the road itself 22 feet in width. Past the cemetery 1.3 mile one finds a small iron bridge which is 17½ feet wide, 8 feet long and the road 13 feet in width. The ditch is shallow. There is another iron and plank bridge .9 mile east where the road is 11 feet in width and the bridge 15½ feet wide by 31 feet long.

This is at Cedar Lake, and after the turn is made there comes a sharp rise, making it awkward, but which is one of the hazards of the game

Then the course reaches the southeastern turn, where the long straight road to the finish begins. It is a flat corner, which, however, can be improved by running a new road across the lot. The turn is 19 feet in width now and good going for 1.5 mile to a point where a new stretch of road begins. Here it is 32 feet wide from ditch to ditch, with the road proper 18 feet wide and good the full width. Only two bridges or culverts are found on this leg, there being a stone culvert 2.2 miles from the turn and another 2.6 miles. The former is a stone one at the foot of a grade. The culvert is 22 feet wide and the road 19, while the ditch is 11 feet deep. The other is a wooden bridge in poor condition. It has stone abutments and an iron railing and is 19 feet wide and 10½ feet long. The stretch of new road is 2.5 miles in length and from its northern end to the finish there is only 3.1 miles, all good going.

**Summing Up the Course**

Summing up the course, one finds there are three wooden bridges, seven stone culverts and four iron bridges—fourteen in all and most of them between Cedar Lake and Lowell. The road probably will average between 17 and 18 feet in width. There is not a single railroad crossing and there are ten turns, not counting the bends. Six of these are left hand turns. So far as the grades are concerned none of them are bad. The odometered distance is 23.6 miles.




General Executive Trego has prepared a new map of the course, showing the circuit as it will be used in the two road races next June. The map gives an idea of the natural beauties of the circuit and its freedom from many turns

# TEN THOUSAND MILES WITHOUT A MOTOR STOP

BOSTON, MASS., April 12—In the presence of close to 2,000 people and with its odometer pointing to just 10,074¼ miles, the Maxwell non-motor stop run car ended its record-breaking trip at just 4:20 this afternoon, after being on the road 26 days 6 hours 20 minutes. It traveled the distance at an average of 16 miles an hour. When the motor was stopped the car was running better than it was a week ago. It was a glorious record achievement and well merited the praise it has drawn and the interest it has aroused as day after day and night after night the little machine plugged along through all kinds of weather without ever stopping the motor. It marks an epoch in motoring.

No car ever got a greater reception in this city on completing an event. It was just 10:10 in the morning when the car had passed the 10,000-mile mark, and at that time it was going through Auburndale. Charles J. Glidden was in the car then. At 8 o'clock that morning before the car left on its trip Mrs. Glidden presented the drivers with a silk American flag which had been purchased in Japan and given to her when she was there. This was attached to the car and off it went.

On its trip back over the regular route the car made its mileage 10,020 and then after putting in some more gasoline it was started away again and out toward the middle of the state it went once more. Starting back about 3, it reached Coolidge corner in Brookline a few minutes before 4. Lined up on either side were scores of motor cars, the greater number of them being Maxwells driven by their owners who had turned out to do homage to the non-motor stop car.

President Speare, of the A. A. A., led the way; the non-motor stop car driven by Charles Goldthwaite was second; another driven by C. W. Kelsey, factory manager, was third, and F. J. Tyler, local branch manager, was in a fourth car. The others fell into line until there were very nearly 100 machines. It reminded one of the entrance of the Glidden tour to the Hub last summer. As the parade wended its way downtown it was the non-motor stop machine which was saluted by waving of hands and blowing of horns by scores of motorists passing in the other direction.

L. R. Speare Cranking Motor at Start of Test

The cars made a line nearly 1 mile long when bunched close together.

Turning into Copley square, there was a throng of more than 1,000 on hand to greet it, and the moment the car halted it was surrounded by hundreds. At just 4:20 o'clock the car was stopped by President Speare, who had cranked it up on March 18. There was a great cheering and the speedometer recorded 10,074¼ miles. After a few minutes spent there the car was off again. This time it went to the Bay State A. A. clubhouse, where it was turned over to Professor Charles F. Park, of the Massachusetts Institute of Technology. He is an expert on metals and he will examine the materials and make a report of their conditions.

C. W. Kelsey, who has been looking after the run from the factory, stated that the exact figures could not be compiled for some days yet. However, he was able to give out some statistics which throw some light on the cost of the run. All told, the expense of making the run for fuel, oil, materials, etc., is something like $200. Here are the approximate figures, the motor running 630 hours 20 minutes; or 26 days 6 hours 20 minutes:

| | |
|---|---|
| 665 gallons of gasoline | $ 99.75 |
| 97 gallons of oil | 72.75 |
| Repairs to leaves in four springs | 8.00 |
| Blowouts, about | 10.00 |
| Changing axle, about | 10.00 |
| | $200.50 |

This does not cover the itemized expense of the salaries for the men, their meals, rooms, etc., which will be given out later. The axle that was changed, it was found after taking out, could have gone along until the finish, but Mr. Kelsey decided not to take any chances with the motor stopping. The Ajax tires went through with the same four shoes, it was stated. The complete details will be given out next week.

When the run ended the men in charge of it, who were all under oath, were sworn out. After a rest of a few hours they were tendered a banquet at the Bay State A. A. by Mr. Briscoe. There were about twenty-five present and nearly everyone made a short speech. The factory was represented by President B. F. Briscoe, C. W. Kelsey and Ernest Coler. F. J. Tyler represented the local branch. Manager Chester I. Campbell, of the Boston show; President L. R. Speare, of the A. A. A.; Manager Cooper, of the Ajax tire branch; Manager Brown, of the Jones speedometer branch; William Gray, of Gray & Davis,

Finish of the Maxwell's Record-Breaking Run

and Secretary Fortesque, of the Bay State Club, were guests. Tomorrow night the representatives of the Splitdorf magneto are to give another banquet.

The drivers and observers who successfully handled the run were Charles Goldthwaite, Ellery Wright, Arthur See, Adam Schneider, Joseph George, C. F. Lawrence, Lucius Tyler, Ralph Coburn and W. S. Simonds.

### MORE CHICAGO COMPETITIONS

Chicago, April 12—An endurance run for cars listed at $1,750 and under is planned for next month by the Chicago Motor Club, which today announced its card for the coming season. The opener will be a novelty in that it will be the first time special attention has been given to the popular-type car such as is represented in the division up to $1,750. It will be a most thorough test, too, it being the idea of the club to ask the cars to go at least 500 miles in 2 days, fully as stiff a schedule as was used in the 1,000-mile 4-day affair last fall. No exact route has as yet been mapped out nor have the rules been adopted, but the technical committee expects to have the regulations in shape for the contest committee the latter part of the week. In addition to this the motor club will stage its annual reliability for all classes between September 10 and October 30 at a distance not less than 1,500 miles. Last year the cars traveled 1,000 miles in 4 days. The annual hill-climb will take place as near August 14 as possible, and again the hills at Algonquin, Ill., will be used. Other events also are planned. One of them will be a skidding test and the other a taxicab demonstration. No dates have been set as yet for these two, it being the intention of the contest board to put them on whenever possible during the summer. With all these events on the schedule, with the road races in June and the Glidden tour passing through, Chicagoans will be kept busy and no one can complain of a dull summer. But every dealer is eager to give the contests strong support and a big year is anticipated.

OBSERVERS AND MAXWELL DRIVERS BEING SWORN IN

## WILLYS CLOSING DEAL

### Pope-Toledos as Well as Overlands Will Be Made in Large Ohio Manufacturing Plant

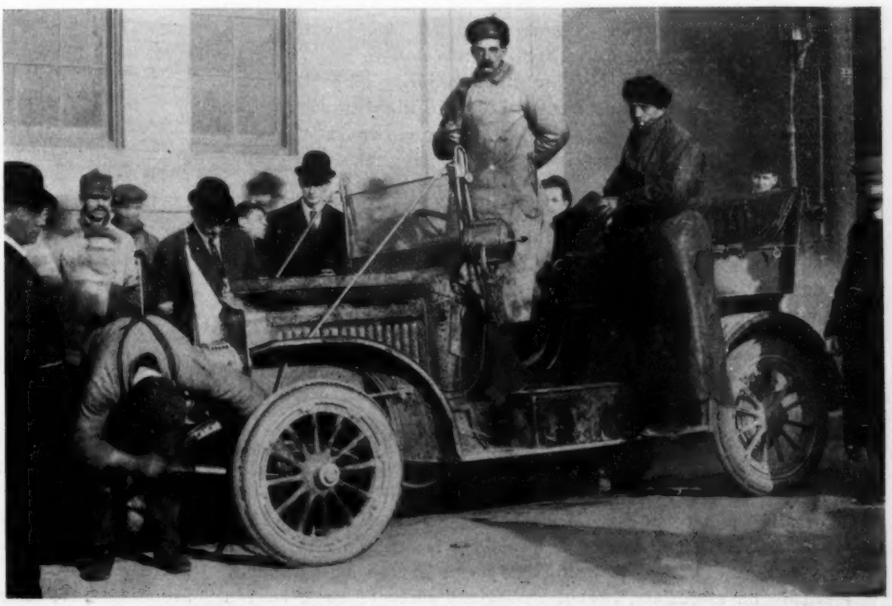
Indianapolis, Ind., April 14—It is expected that by the end of the week the purchase of the Pope motor car plant in Toledo by the Overland company, of this city, will be completed, and, if so, the Overland company will continue the manufacture of the 1909 Pope-Toledo car and all users of these cars will be looked after and will have every opportunity to secure parts. In addition to the manufacture of Pope-Toledo cars at the plant, the Overland cars will be manufactured, but the Overland company will also continue the operation of its plants in Indianapolis. President Willys leaves tonight for Toledo, where it is expected he will complete the deal.

Toledo, O., April 10.—Since the Pope motor car factory here has been on the market for months past a big question in the motoring world has been "Who will get the Pope plant?" All sorts of rumors have been afloat and the newspapers have had the plant sold two or three times over. It is now believed, as reported by Motor Age last week, that the fate of this concern has been decided, although the final outcome of the new deal now pending will not be known for 30 days, it is declared.

The Overland company, of which J. N. Willys is president, last week entered into negotiations for the plant, and $25,000 was paid down as an evidence of good faith to bind the bargain, by Mr. Willys in New York city, who then came on to Toledo, where the plant was inspected and further negotiations made. The Overland company will begin operating the plant experimentally next week, with a force of 433 men. If the deal is consummated at the end of 30 days, it is prophesied that the plant will be running full force employing its regulation force of 2,000 men by fall, at which time the Overland will be in possesion.

The Overland company operates four plants at Indianapolis, owing to lack of room for combining the three, and it is said that at least two of these factories will likely be removed to Toledo should the deal with the Pope company go through. It is also said that there will be a possibility of securing for Toledo the Kinsey Mfg. Co., of Dayton, with which the Overland company does business.

In conversation with a Motor Age representative, Harold Pope said: "The Pope plant is practically sold, for Mr. Willys has put up $25,000 as an evidence of good faith, which he will be in no hurry to lose. The plant will be operated immediately with a small force, but I believe it safe to say that by fall 2,000 men will be at work there."



MAXWELL NON-MOTOR STOP CAR DURING ITS GREAT RUN

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# Illinois Motorists Fight Wheel Tax

FOR a year Chicago motorists have been paying to the city a wheel tax amounting to $12 for two-passenger machines, $20 for touring cars and $30 for trucks. This is an annual tax to be paid the first day of May or as soon thereafter as the city hall can secure or enforce the collections. Of the sum collected part has to go to pay the judicial expenses and the remainder is set aside to be devoted to the street and alley repair fund—a worthy one and one needing every assistance in all large cities. The Chicago motorists are a law-abiding class, they take out their state licenses and carry the state numerals on front and rear of their machines as well as on the head or dash lamps, and in general conform with all regulations required by the state law; but when it came to paying the wheel tax a great majority arose in arms because of what they considered the injustice of the measure.

ONE of the unjust phases of the wheel tax ordinance is that the money collected by wheel tax from the motorists goes to keep the city streets in repairs; but in Chicago the boulevards and park roads are not maintained by the city but by special park boards and on these boulevards and parkways special park policemen are used who have no connection whatever with the city policemen. Over 80 per cent of the motoring in the city, in fact, nearer 95 per cent is done on the boulevards and the city streets are used very little, only where boulevards do not exist. It is this condition that has provoked rebellion in the motorists' ranks, namely, to be taxed unjustly for the repair of streets which they rarely use. If the motorists paid a wheel tax it should go to support the boulevards and parkways which are for pleasure use only and off which every type of commercial vehicle is barred. As it is they pay a tax to keep in repair streets that are not used by them but which are worn out almost entirely by horse-drawn vehicles of one nature or another.

BUT added to this is a further injustice: The smallest two-passenger car pays an annual tax of $12, whereas a one-horse wagon pays but $5, and two-horse vehicles $10. It is to be acknowledged that motor cars travel more miles in a given time than horse-drawn vehicles, but the great majority of horse-drawn vehicles are on the streets from morning until night, during all of which time each horse has twelve spikes or corks on his shoes that are constantly cutting into and injuring the pavement; whereas the injury by motor cars is largely on the boulevards, where macadam or similar pavement is used. It is not here denied that motor cars do not injure streets; they do, particularly macadam and it is right and just that motorists should, and they are willing to, meet their just share of the upkeep, but it is unjust, and un-American to tax them heavily for streets they rarely if ever use and let the vehicles that constantly use such streets off with a 50 per cent lighter tax.

BUT there is another phase to the Chicago wheel tax problem which takes it beyond the boundaries of Chicago and makes it a matter of grave concern to every person living in Illinois and owning a motor car. By the state motor vehicle law enforced July, 1907, one of the provisions is that no city, town, village or municipality governing body can impose legislation of any nature on motorists, except in certain cases of park boards and on private roadways, this law being specially intended to place the motorists only under obligation to the state and entirely free from the power of cities, towns, villages, etc., throughout the state. Because of this provision in the state law it was necessary for the city of Chicago to get a special bill through the Illinois legislature at Springfield amending the Cities and Village act and making it lawful for cities to levy a wheel tax if desired. This bill was pushed through the legislature on December 31, 1907. No sooner was this done than Chicago passed its wheel tax ordinance in the spring of 1908 and began enforcing it. Payments of the tax were made slowly, in fact, it was early fall before many were compelled to pay and the majority paid under protest, which action prevented the city making any use of the money. Meantime the Chicago Motor Club took the case to the Supreme Court of the state and an adverse decision was given by the judges of that court, which upheld the validity of the ordinance.

NO sooner was the matter dropped by this organization than the Chicago Automobile Trade Association took the matter up and has already had a bill introduced in Springfield to repeal the measure passed December 31, 1907, giving municipalities the power to pass wheel taxes. This organization is at present canvassing the entire state for aid to combat the measure and this all-state campaign suggests the necessity of quick action by every car owner in the state. By the special act of the legislature, just referred to, every city, town, village and municipality in the state is given the power to pass a wheel tax and such corporations can levy whatever amount they see fit. The law allows them to tax "any citizen" who drives a motor car. This does not mean "any resident." By this power conferred by the state legislature every city, town, village and municipal corporation can compel every motorist-citizen in the state to pay a wheel-tax in his municipality or corporation if he happens to pass through it. A motorist going from Bloomington to Springfield could be compelled to pay a wheel tax in every municipal corporation passed through if that corporation saw fit and passed its ordinance, which could be done by the local board in a few days. That board can also state the amount of tax and arrest if it is not paid. The motorist-citizen of Chicago who would go to Waukegan, a north shore resort, could be compelled to pay twelve wheel taxes before reaching his destination. The state has conferred this power on the corporations.

TO show that it is no vague conception that municipal corporations purpose levying such taxes, already Evanston, Oak Park and Naperville, all within forty miles of Chicago, have passed ordinances and cases are on record where individuals are paying wheel taxes in three places at the same time. What these places are doing others may do as soon as they awaken to the possibilities of securing revenue in this way. The power conferred by the special act of the legislature on cities, towns, villages and corporations is almost revolutionary in its nature and is more far-reaching than any recent act passed in this or any other country relative to motoring. If all municipalities desired they could practically restrict the motor car to the local field. With horse vehicles there is little inter-town work, the horse radius being 10 to 20 miles. Not so with motor cars, they are essentially inter-city and inter-state. All Illinois motorists should unite in assisting the present fight.

# SANCTION GRANTED FOR CHICAGO ROAD RACE

CHICAGO, April 12—The west's first chance to see a real live road race is close at hand, the American Automobile Association having granted a sanction to the Chicago Automobile Club for two road races June 18 and 19—one for a light car race on the 18th, the piston displacement in which will be 300 inches, and the other the Cobe cup, for which cars with piston displacement up to 525 inches are eligible, on the 19th. The granting of the sanction follows an active preliminary campaign which has resulted in the securing of permission from the officials of Lake county, Indiana, to use the roads there for a racing circuit and also includes militia to guard the course, both of which were insisted upon before Chairman Hower would consent to considering the granting of the sanction.

Announcement that the application of the Chicago Club had been given favorable consideration at the hands of the national organization came last Friday, at which time it also was given out that there had been a modification of the A. A. A. classifications as drawn up by the Manufacturers'

M. C. A. PISTON DISPLACEMENT CLASSIFICATION

| Class | Minimum weight in pounds | Piston displacement in cubic inches |
|---|---|---|
| 1 | 2,400 | 451-600 |
| 2 | 2,100 | 301-450 |
| 3 | 1,800 | 231-300 |
| 4 | 1,500 | 161-230 |
| 5 | 1,200 | 160 and under |

Contest Association whereby Chicago is granted a special dispensation in the matter because of the proximity of its races and the fact that the plans for them were mapped out before the Manufacturers' Contest Association was formed. Under this modification Chicago is enabled to put on a limit of 525 inches in the Cobe cup, reduce the weight limit 150 pounds and provide for the entering of 1910 models by means of an original rule whereby the maker must put up a $5,000 bond, which is forfeited to the A. A. A. in case he has not built ten cars of the models he races by October 1, 1909. In the light car event Chicago had the weight limit removed entirely but accepted the classification limit of 300 cubic inches as suggested by the makers' committee.

Before Chicago made its application for a sanction last week the club received the M. C. A. classifications and considered them. It chose No. 3 for the light car event, which made the limit of piston displacement 300 inches. But it was believed the weight limit would be detrimental to the race from an entry standpoint and also it was felt that a range of from 450 to 600 inches was too wide for the Cobe cup. Going carefully into statistics the technical advisers of the club arrived at a conclusion that by making the limit 525 inches it would include the majority of makers; that if a 600 limit was allowed that a few of the very big cars would scare out many who might compete if the size were smaller. So it was decided to ask Chairman Hower to modify the classifications to this extent. In turn Chairman Hower submitted the matter to H. E. Coffin, chairman of the rules committee of the M. C. A., who took a telegraph vote of the members of his committee, which resulted in a decision to allow Chicago to use the 300 and the 525-inch classifications; to reduce the weight limit in the big race and do away with it altogether in the light car event. The classifications therefore are as follows:

Cobe trophy race, June 19—Open to stock chassis of 1909 models or earlier, of which ten have been built, and 1910 models of which the parts for ten are on hand at the factory of entrant prior to June 1, 1909, manufacture of same to be commenced. The entrant is to furnish affidavit proving the eligibility of the entry under above conditions and is to furnish a bond of $5,000, made payable to the treasurer of the A. A. A., which bond is to be forfeited to the A. A. A. in the event of the entrant failing to construct ten cars according to his affidavit, said cars to be completed on or before October 1, 1909. This race will be approximately 410 miles in length, over a 24-mile circuit over the public highway. Minimum weight of chassis, with tanks empty, 2,250 pounds; maximum piston displacement, 525 cubic inches in the whole engine.

Light car race, June 18—Open to stock chassis under same conditions as the Cobe trophy race as to number of models built, etc., but to have not over a maximum piston displacement of 300 cubic inches in the whole engine. No weight limits imposed.

Optional construction—All must be stock except: Extra gasoline and oil capacity, no change in principle; any angle of steering column and gear; any gear ratio of driving system; any tire and rim equipment.

## Modifications Made in Classifications—Manufacturers' Contest Association Regulations

NEW YORK, April 7—The rules committee of the new Manufacturers' Contest Association has recommended to the contest board of the American Automobile Association for adoption, classifications to govern competitions during 1909, the same to go into effect as soon as ratified by the A. A. A. board. Five new classes according to piston displacement with minimum weight limits, have been adopted after the most thorough study of the subject by the special rules committee, consisting of H. E. Coffin, chairman; A. L. Riker, George A. Weidely, F. B. Stearns, Edgar Apperson, and Paul Lacroix.

The result of the work of this committee was referred to the general rules committee of twenty-five, from which the special body was chosen, at the meeting held in New York on Tuesday, March 30. The price classification of the American Automobile Association was readopted, with

The stock car clause in the present A. A. A. rule reads:

Stock car—A motor car completely described in the manufacturer's catalog for the current or any preceding year, which is manufactured in quantities of ten or more, which is on sale by the regular selling representatives of the manufacturer and is manufactured ready for delivery to buyers.

M. C. A. PRICE CLASSIFICATION

| Class | Minimum weight in pounds | Price |
|---|---|---|
| 1 | 2,400 | $4,001 and over |
| 2 | 2,100 | 3,001-4,000 |
| 3 | 1,800 | 2,001-3,000 |
| 4 | 1,500 | 1,251-2,000 |
| 5 | 1,200 | 851-2,000 |
| 6 | .... | 850 and under |
| 7 | .... | Open |
| 8 | .... | Special |

This was changed so that twenty-five instead of ten cars must have been built, and the following added: "Top, wind shields and extra tires may be removed. The muffler cut-out is optional."

The present A. A. A. stock chassis clause reads:

Stock chassis—A chassis, which without any change whatsoever, except that lighter rear springs may be used, can, by adding the necessary parts, be assembled into a complete stock car for which it is designed.

To this was added:

Vehicles for stock chassis races must be the product of a factory which has during the 12 months prior to the date of the event produced at least fifty motor cars regardless of model. The A. A. A. minimum weight clause with an allowance of 2 per cent will govern. It is further provided that additions to the oil and fuel supplies, a change of steering gear angle of driving gear ratio and of tire and rim equipment are left optional with the entrant.

It was unanimously voted to recommend to the Chicago Automobile Club that its race for the Cobe cup and the small car event to precede it both be for stock chassis and held under piston displacement classifications. These rules were in turn passed along to the contest board of the American Automobile Association, which will insist upon the use of these classifications in the various contests from now on.

## Coming Motor Events

Montreal, St. Lawrence hall, fourth annual show, auspices of Automobile Club of Canada, R. M. Jaffray, manager, April 17-24.

Chattanooga, Tenn., hill-climb, Lookout Mountain Automobile Club, April 22-23-24.

Roadability run, Philadelphia to Atlantic City, Quaker City Motor Club, April 24.

Second annual carnival, New York Automobile Trade Association, April 26-May 1.

Second annual Fort George hill-climb, New York Automobile Trade Association, April 26.

Pittsburg Gazette Times-Chronicle Telegraph 3-day endurance run, April 28-30.

Endurance run, New York Automobile Trade Association, April 30.

Third annual endurance run, 700 miles, Washington, Baltimore, Scranton, Motor Club of Harrisburg, May 3-6.

Four-day endurance run, Detroit Automobile Dealers' Association, May 10-13.

Reliability run, Philadelphia to Pittsburg and return, Quaker City Motor Club, May 11-15.

Second annual endurance run, Norristown Automobile Club, to Hagerstown, Md., May 18-19.

Two-hundred-mile endurance run, Hartford Automobile Club, Hartford, Conn., May 22.

Third annual endurance contest, New Jersey Automobile and Motor Club, May 22.

# E-M-F STARTS TO BLAZE THE GLIDDEN TRAIL

DETROIT, Mich., April 12—With the hearty good wishes of an informal gathering of Detroit motorists in his ears, Dai L. Lewis, the official pathfinder of the A. A. A., left the Hotel Pontchartrain this morning, on his annual trip of road-inspection and charting over the course selected for the 1909 Glidden tour. With him in the E-M-F. car, which had been selected for the work, were E. Leroy Pelletier, W. A. Krohn, the official photographer, George Meinzinger of Detroit, who will drive the car, and a local newspaper man. As is his custom, Mr. Lewis is making no attempt at following any prearranged schedule, but will go over the route at whatever speed he may select, contingent upon the work which he is to do. The Michigan roads between here and Chicago are reported in unusually good condition for this time of year.

On the night preceding the start Mr. Lewis was the guest of honor at a banquet, tendered by the E-M-F. company at the Pontchartrain. Covers were laid for twenty-five and the dinner was followed by addresses. Mr. Lewis, in his address, predicted that the tour of 1909 would far eclipse anything in the history of the event. A hundred entries are already certain, he said, and it is possible that this number may be very largely increased. He also brought on behalf of the contest committee the announcement that the date for the start of the tour had been set along 1 week, from July 5 to July 12. This change was partly on account of the celebration of Independence day which, in this city, will take place on Monday.

It has been decided locally to add to the list of prizes for the tour one to be known as the Detroit trophy. This will be for the baby tonneau class and probably will be donated by the city. Mayor Breitmeyer has stated his willingness to send a message to the common council, advising the appropriation. In case any hitch occurs, the trophy will be presented by the board of commerce. It was originally desired to have the trophy come from the Detroit Automobile Dealers' Association, but Chairman Hower strongly advised that the donation be from no trade source and hinted that it would be exceedingly difficult for the dealers to secure an acceptance of the trophy—in case it came from them. The municipal source would be entirely acceptable, however, he stated.

**Pathfinders in Kalamazoo**

Kalamazoo, Mich., April 13—The E-M-F Glidden pathfinders reached this city tonight after a strenuous battle with the mud. In fact, ever since the car left Detroit Monday it has been plugging over rough roads and finding the going anything but easy. It is the intention to drive 80 miles tomorrow to South Bend, which will bring the scouts within a short day's run of Chicago. It is expected that the glad hand will be extended by the Chicagoans, it being understood that an escort will meet the pathfinders in Indiana somewhere and escort them into the city.

## PATHFINDERS AT WORK

Detroit, Mich., April 12—Pathfinding for the annual tour of the Detroit Automobile Dealers' Association is in progress this week under the management of George Grant, W. H. V. Neumann and Robert K. Davis, the committee of the association having this matter in charge. The country which will be covered on the run from May 11-14, inclusive, will be thoroughly gone over. Prospects for a large number of entries are excellent, the feature of a run which will end in Detroit each night having met universal approval. The route which has been definitely decided on during the past week will be as follows:

May 11—Detroit, Roseville, Mt. Clemens, Chesterfield, New Baltimore, Anchorville, Marine City, St. Clair, Port Huron, Abbotsford, Capac, Imlay City, Almont, Rome, Washington, Utica, Centerline, Detroit.

May 12—Detroit, Sand Hill, Farmington, Novi, New Hudson, Brighton, Howell, Fowlerville, Webberville, Williamston, Lansing and return by the same route.

May 13—Detroit, Pontiac, Rochester, Orion, Oxford, Metamora, Lapeer, Flint, Fenton, Holly, Waterford, Drayton Plains, Pontiac, Detroit.

May 14—Detroit, Dearborn, Inkster, Wayne, Denton, Ypsilanti, Ann Arbor, Lima Center, Chelsea, Grass Lake, Michigan Center, Jackson, Eldred, Napoleon, Norvall, Manchester, River Raisin, Clinton, Tecumseh, Birdsall, Adrian, Saline, Ypsilanti, Denton, Wayne, Inkster, Dearborn, Detroit.

## LOWELL OFFERED NATIONAL RACE

Worcester, Mass., April 11—President John O. Heinze, of the Lowell Automobile Club, has received assurances from Boston that if Lowell wishes, it can promote the A. A. A. national stock chassis race in June, which originally was scheduled for Chicago. Mr. Heinze says a guarantee of $10,000 will assure the event to Lowell. Humphrey O'Sullivan will offer a silver trophy for competition upon one condition, which can be easily complied with. It is that no mention be made of the business in which he has amassed millions. The finance committee of the association will report this week and it is expected it will be favorable in the matter of the $10,000 guarantee.

## MICHIGAN SHOW PLANNED

Detroit, Mich., April 12—Formal announcement will soon be made of an organization of Michigan motor car manufacturers, the purpose of which will be the management of an annual fall show in Detroit, for the benefit of the trade alone. Matters have progressed to such a stage that the affair is now assured. The leading factories of Detroit have already given the plan their approval and all of the state concerns interviewed on the matter have been enthusiastic in their responses. The first of these shows will be held during August, 1909—in all probability during the first week—and the event will be made, so far as possible, the occasion of an annual gathering of the retail dealers of the country who will be expected to be present and place their orders for the cars which they will handle during the coming year. For some time the project of a trade show at the center of the manufacturing industry has been agitated here. The fact that most dealers place their orders in the fall has made the New York shows virtually local affairs for the past two seasons, it is argued. Detroit is the logical location for such an event from the standpoint of the manufacturers and the location of the show at this point would result in a tremendous saving of money. The middle west as a market is becoming increasingly important and the only people who would be at all discommoded would be the dealers situated in the east, most of whom make a fall trip to the Detroit and Michigan factories at present, before ordering. The state fair grounds, which contain buildings of ample size for such an affair, are available for the dates desired and an option has already been secured. The option also includes the privilege of the use of the excellent mile track contained in the plant, which will be used for purposes of demonstration.

"We are out to make Detroit and its annual show of motor cars as prominent as Grand Rapids and its furniture displays are in their line of industry," said one of the manufacturers in discussing the project. "We are calling the affair a Michigan show because of the fact that we are not yet ready to ask a formal sanction as a national exhibition until we have demonstrated that our plan is the only one feasible in getting the buyers and manufacturing trade together. While we shall call it a Michigan show, cars made outside the state will not be barred but invitations will be tendered to the trade in Cleveland, Indianapolis and other neighboring trade centers."

## DEAD HORSE CLIMB IN DOUBT

Worcester, Mass., April 11—The Dead Horse hill-climb will be held again this year. This was the authoritative announcement from the Worcester Automobile Club offices yesterday. The Dead Horse hill-climb will not be held this year. This is the announcement, also authoritative, from the same club made today. On Saturday the club officials had made up their minds to hold the climb in June, and were awaiting the sanction of the American Automobile Association. Now the same officials do not care whether the sanction comes or not. The reason for this sudden shift is due wholly to the frenzied finance prices demanded by abutters on the Dead Horse hill course for the right of way. The subcommittee appointed to make preliminary arrangements for the climb passed yesterday afternoon in viewing the famous hill course and talking the matter over with

owners of property abutting on it. As members describe it today, "the abutters blew sky high with their prices, making it an unwise procedure to go ahead with the arrangements." John P. Coghlin, president of the club, presided at a meeting of the sub-committee tonight. The committee, after discussion of yesterday's trip, voted to recommend to the board of governors not to pull off the climb this year. The board of governors, at a meeting this week, will undoubtedly coincide with this action. Members of the club are incensed over the attempt of the abutters to more than overcharge them for the privilege of fencing in the road and using the thoroughfare for the hill-climbing contest.

### TWO CLUBS IN BOSTON

Boston, Mass., April 10—Boston is now the home of two motor clubs—the Bay State A. A. and the Boston Motor Club. Wednesday night the Boston Motor Club elected its officers, and it starts off with bright prospects. That the two clubs will get along there is little doubt, for the officers of both are affiliated in a way through the dealers' association, and they realize that the best interests of the industry will be served by working in harmony. Colonel Horace G. Kemp, a well known business man of Cambridge, was chosen president of the new club. E. A. Gilmore, who was chosen vice president, is a member of the firm of Whitten-Gilmore, agent here for the Thomas and Chalmers-Detroit cars. He was one of the charter members of the Bay State club. Alonzo D. Peck, known over the country since the reign of the bicycle as "Lon," and starter at all the race meets hereabouts, was made secretary. W. K. Farrington, the treasurer, is in the printing business. The directors chosen to work with the other officers are A. P. Teele, J. B. Sullivan, Jr., Arthur E. Adams, A. B. Henley, H. H. Love and R. R. Ross. The first two named are attorneys. Mr. Adams is the agent for the Oldsmobile, Mr. Henly represents the Franklin, and Mr. Ross is with the Peerless. Mr. Love is a broker. The new club will make its home in the Hotel Oxford undoubtedly.

### NEBRASKA RUN PLANNED

Omaha, Neb., April 13—A silver cup has been offered by the Omaha Daily News for an endurance contest of from 300 to 500 miles to be run near Omaha the latter part of this month. The designs of the cup are a flying motor car on one side and the name of the winner of the contest on the other. Rules governing the contest have not been completed, but one of them will be that no drivers outside of the amateur class will be permitted to compete. Considerable interest is being taken in the matter and it is likely there will be from ten to fifteen entrants. The route may be to some point in western Nebraska and return, although it is not positive.

## NEW NATIONAL SHOW

### Atlanta Added to Big Circuit by N. A. A. M. Which Also Endorses A. A. A. Race Pact

New York, April 12—The National Association of Automobile Manufacturers, which met here last week, has sanctioned a national show at Atlanta, Ga. Preceding the executive committee meeting there was a session in the morning of the show committee, during which there appeared a notable delegation from Atlanta to ask that that enterprising southern city be included in the very limited national show circuit, which now only includes New York and Chicago. It was the contention of the delegation from the Gate City of the South that a national show would be an excellent investment for the industry, and these were the men who urged Atlanta's claims: Clark Howell, managing editor of the Atlanta Constitution; John L. Cohen, S. C. Dobbs, of the chamber of commerce; Charles R. Ryan, J. T. Fitten, E. M. Hansom and E. W. Gans.

Atlanta has the show fever and during the winter an effort was made to promote an exhibition, but it came too late and so the idea was abandoned. Later it was decided that a national show would be the thing.

The show committee was so favorably impressed with the arguments presented that it voted to recommend to the executive committee that Atlanta have a show conducted directly under N. A. A. M. auspices. At the executive committee's meeting the matter received thorough attention, with the result that S. A. Miles, the general manager, was empowered to conduct final negotiations with the proper parties in Atlanta, to which city Mr. Miles will subsequently pay a visit, perhaps accompanied by Alfred Reeves, of the American Motor Car Manufacturers' Association.

Plainly expressed and subject to no misinterpretation was the pronounced manner in which the executive committee of the National Association of Automobile Manufacturers placed itself upon record as approving the alliance between the Manufacturers' Contest Association and the American Automobile Association. The full text of the resolution is herewith given:

Whereas, The interests of the motor car manufacturers in contests of all descriptions are well represented by the Manufacturers' Contest Association, to membership in which all manufacturers are eligible and to which a large number of manufacturers have already applied for membership; and

Whereas, A formal alliance has been entered into between the Manufacturers' Contest Association and the American Automobile Association, one of the conditions of which alliance provides for an advisory committee representing the manufacturers and appointed by the principal trade organizations, which committee takes an active part in the deliberations of the contest board of the American Automobile Association; and

Whereas, The interests of the trade demand not only the maintenance of such an association but active participation by it in matters relating to contests of all descriptions; be it

Resolved, That members of the National Association of Automobile Manufacturers, Inc., be and are hereby respectfully urged to apply for membership, to take an active interest in and to loyally support the Manufacturers' Contest Association and its rules; and be it further

Resolved, That the Manufacturers' Contest Association will act in accordance with the desires of this association by giving full publicity to its regulations and decisions, and by taking such definite action as will disbar from events sanctioned by the American Automobile Association all persons or organizations who or which take part in or in any other way support any event not so sanctioned.

The Rapid Motor Vehicle Co., of Pontiac, Mich., was elected to association membership.

### SEATTLE PREPARES FOR RACE

Seattle, Wash., April 10.—When the cars entered in the New York-Seattle endurance contest for the Guggenheim trophy approach Snoqualmie pass on their way across the Cascades, they will be obliged to ferry a distance of 3 miles over Lake Kitcheness. This fact was brought out by State Highway Commissioner J. M. Snow in an address before the King County Good Roads Association. Commissioner Snow explained that because of the raising of the level of Lake Kitcheness in connection with a reclamation project, the highway leading to Snoqualmie pass has been flooded for a distance of 3 miles and ultimately will be covered 4 miles more than that. Then he added that while the state has about $1,750,000 available for the improvement of roads, this money cannot be used in building a road around the lake in time for use by the race. The transcontinental route for the big race is well defined as far west as Granger, Wyo., but from that point on toward the coast no definite route has ever been fixed. In all probability, therefore, the route from Granger west hereafter will probably be the same as that followed by the racing cars in the approaching contest. Realizing this fact, Governor Brady, of Idaho, has notified those interested in the big race that Idaho will spend $50,000, if necessary, in placing the roads in that state in proper shape for the race. The business men and other citizens of eastern Oregon offer in the same way to repair their roads for the benefit of the race should it come that way, and it was decided to grant their request. The route will lie between Huntington and Walla Walla.

### PRESIDENT WILL START RACE

Washington, D. C., April 12—President Taft today gave another manifestation of his interest in the motor car by agreeing to press a button on June 1 that will be the signal for the start of the New York-to-Seattle contest. The pressing of the button will notify Mayor McClellan in New York that the moment for the start —noon—has arrived. Mayor McClellan will fire a pistol, at the sound of which the cars will start off on their long transcontinental journey. M. Robert Guggenheim, donor of the trophy, came to Washington today and was presented to President Taft by his uncle, Senator Guggenheim. Mr. Taft readily agreed to flash the signal to New York.

# NEW HAMPSHIRE'S GOOD ROADS BILL PASSES

CONCORD, N. H., April 10—After a prolonged session, during which many hours were spent in filibustering in an endeavor to kill it, the bill appropriating money to build state highways was finally passed here this morning. While it is known as the $1,000,000 bill it really stands for $5,750,000. The items in the bills are $1,000,000 in bonds from the state, $1,000,000 from the towns and an appropriation of $125,000 a year for 30 years, making $3,750,000 more. In the next 4 years $1,000,000 will be spent in building or improving 600 miles of highways leading from the Massachusetts state line to the White mountains. Later on the other roads leading to Vermont and Maine will be constructed. On Thursday the bill came up for consideration in the house, and it was delayed by repeated roll calls until after 12 o'clock, the latest time which, under the rules, would allow house bills to be acted upon and forwarded to the senate. The obstructors accomplished their purpose in this particular, but debate was continued on the bill. Despite repeated attempts to adjourn and take a recess for dinner, the friends of the bill stuck to their task and prevented it being dropped. Finally, after a brief intermission for lunch, the bill was passed by a vote of 174 to 130.

But that did not settle the question. It had to get a vote on concurrence with the senate. The next move of its friends was to have it tacked on in its entirety as an amendment to an inconsequential highway bill originating in the senate and passed and sent back to the house for concurrence. Then came another fight. The good generalship of the bill's friends was resented by the opponents, and more filibustering followed. All afternoon the bill was fought, there being eight roll calls. At each stage it was apparent that the friends of the bill proposed to stand by it if they had to keep the house in session all night, and they began to gain ground with each roll call. Then the opponents tried to break a quorum by leaving the house, but they were ordered back by the speaker and the doors locked. The session lasted until nearly 8 o'clock, but on the final vote then there was a leakage of votes and it lacked three of the necessary two-thirds to pass it. So an adjournment was had until this morning when it came up again.

Bright and early the friends of the bill got busy this morning, repairing the fences from the night before. When it came up again the opponents said that the state could not afford to pass it, as it would bear too heavily on the small towns. It was pointed out by its friends that the highways would bring a lot of revenue to the state and make the summer places more valuable. One instance was cited where land around Squam lake that could be bought a generation ago for $20,000 had increased to more than ten times that amount now, and even some of the land could not be purchased at any price. Following along those lines the workers for the bill lost no time in urgings its passage. As the last filibustering tactics that could be used was a demand for a roll call, one was asked, and it was granted. It was passed on the first vote by 205 to 152, the best vote the bill had on any of the ten roll calls it brought out.

The men who fought for the bill and are entitled to credit for bringing about the much needed project were Ahearn, of Concord; Emerson, of Milford; Wason, of Nashua; Buffum, of Winchester; Preston, of New Hampton, Howe, of Concord, and O'Neil, of Walpole. Theirs was a well deserved victory and they deserve the thanks of the motorists and all right-minded citizens who believe in keeping abreast of the times.

Governor Henry B. Quimby believes in good roads for the state and a few days ago with his council he inspected the highways along the coast that connects Massachusetts with Maine running through New Hampshire. The governor stated that he is in favor of building a connecting stretch at Rye beach directly on the ocean front to complete the continuous road and he would ask for money for it later. This highway is traveled a great deal in summer.

**Money for Bay State Roads**

Boston, Mass., April 12—The Massachusetts highway commission has completed its list of allotments for the highways and the small towns will get $120,242 this year to spend under their own direction. There will be spent by the commission a total of $469,645.46 on the highways in the different towns of the state. The county of Essex gets the larger share, the appropriation carrying $77,101 to be divided among eleven cities and towns. The places to be benefited comprise the famous North Shore sections, where the wealthy people from all over the country have their summer homes. Next in order comes Worcester county, which is right in the heart of the state. There is to be spent there by the commission $66,076, divided among nineteen towns. Middlesex county gets the next largest slice, $63,672, to be shared by sixteen places. That is in the eastern part of the state. Four towns in Hampden county up in the Berkshires get $47,946. Bristol, Barnstable and Berkshire counties practically share alike. The first named gets $31,477, next $31,490 and the last $31,498. Bristol has seven places to care for with the money, Berkshire five and Barnstable ten. Norfolk county gets $34,257 for seven places, Franklin county $29,517 for four, Plymouth county $28,859 for seven, Hampshire county $17,952 for five, and Duke's county $9,800.46 for one town. The largest allotment for any one place is $22,191 for Palmer. Several places get something just above or below $15,000. In all there are ninety-four cities and towns taken care of, which means a great deal of work will be done to keep the highways of the Bay State in shape during the coming year.

**Sulzer on Good Roads**

Washington, D. C., April 10—The good roads movement has no greater advocate in congress than Representative William Sulzer, of New York. During the past week he delivered a strong speech on the subject, stating among other things that national aid for good roads is demanded by the people, and the question will grow more and more important as the seasons come and go until the demands of the people are granted by the national government. The following excerpts from Mr. Sulzer's able address are of pertinent interest to motorists:

"Good roads mean progress and prosperity, a benefit to the people who live in the cities, an advantage to the people who live in the country, and it will help every section of our vast domain. Good roads, like good streets, make habitation along them most desirable; they enhance the value of farm lands, facilitate transportation, and add untold wealth to the country. Good roads have a money value far beyond our ordinary conception. Bad roads constitute our greatest drawback to internal development and material progress.

"The direct connection between good roads and the value of farm lands is shown in a striking manner by the United States department of agriculture. The returns received by the department from various states show that in nearly every case the states having the highest percentage of improved roads have the largest population per mile of road, thus showing that better roads are a powerful factor in encouraging the settlement of unused lands, especially in sparsely populated sections of the country. A comparison of the percentage of the improved roads of the various states shows that the average percentage of the improved roads in all states where farm land is worth less than $20 an acres is only 1.8 per cent, whereas in the states where the acreage value is more than $20 improved roads constitute an average of 9 per cent of the total mileage.

"The farsighted wisdom of Julius Cæsar built from the imperial exchequer the magnificent roads that led in all directions to eternal Rome. The great Napoleon—Cæsar-like—built the roads of France that center in Paris from the general funds of the government; and these French roads have done more than any other single agency to encourage the thrift

and increase the industry of the people of France. Cæsar and Napoleon were the great road builders of ancient and modern times, and their foresight and their judgment and their work demonstrated the beneficent results that follow like the night the day the building of great governmental highways which are now monuments to their greatness.''

**Baltimore's Road System**

Baltimore, Md., April 12—The state road commission has made final selections of routes in all except Frederick, Hartford and Montgomery counties. This was brought about by the naming of definite routes in Baltimore, Carroll, Howard and Washington counties and the selection of streets in Baltimore to be paved out of the $5,000,000 good roads loan. The counties and the routes therein selected for these improvements are:

Baltimore—Belair road to Kingston, thence to the Harford county line via the old Belair road; the Baltimore and Frederick turnpike to the Howard county line; the York turnpike to Towson; Westport and Annapolis road for about 1½ miles; Falls road for about 2 miles to Mount Washington; Harford turnpike to its intersection with Taylor avenue for about 3 miles; Philadelphia road for about 3 miles to Herring run; Park avenue for about 4-5 mile to Belvedere avenue; Liberty turnpike for 1 mile from the city limits, if this can be secured free of cost to the state.

Carroll county—Starting at Sykesville and proceeding by way of Eldersburg, Gambler, Birdhill, Smallwood and Fenby to Westminster; from Westminster to Manchester; from Westminster to Taneytown; from Westminster to Frizzelburg; the road from Ridgeville toward Taylorville for 2 miles; from Ridgeville on the Baltimore and Frederick turnpike to the Howard county line.

Howard county—From Ellicott City by the Baltimore and Frederick turnpike to the Carroll county line; from West Friendship to Sykesville; from Ridgeville south toward Damascus for 2 miles; from Ellicott City by way of Clarksville to Snell's Bridge.

Washington county—From the Frederick county line near Boonsboro by way of Hagerstown, Conococheague, Clearspring, and Hancock, to the Allegany county line over the old National pike; a road from Boonsboro southerly to Weverton and a branch from this route to a point near Gapland easterly to the Montgomery county line.

**Oil for Missouri Roads**

St. Louis, Mo., April 12—Through the activity of the Automobile Club of St. Louis, William Elbring, road commissioner of St. Louis county, will oil about 15 miles of county road. Already Mr. Elbring has been active in this work, there being now about 85 miles of road which is kept well oiled. Usually the expense is defrayed by citizens living adjacent to the territory affected. The roads contemplated in Mr. Elbring's present work are: Eight miles of Olive street road; 2 miles on South Broadway, and the Gravois road between Grant's farm and the city limits. In addition to this work, which has already been provided for, petitions are being circulated for the oiling of the Manchester road for about 15 miles. St. Louis county probably has the best roads in the state, the only rival in this point being the Jackson county roads out of Kansas City. Road Commissioner Elbring attributes most of the success in building good roads here to the activity of motorists who are determined to do everything in their power to keep up the work.

# OLDS WILL RUN SHOW

## Maker of Reo Chairman of Committee To Handle Grand Central Palace Exhibition

New York, April 12—At a full meeting of the committee of management of the American Motor Car Manufacturers' Association, held last Wednesday, H. O. Smith, chairman, announced the appointment of R. E. Olds to head the show committee for 1909. The other members of the committee will be S. H. Mora and Benjamin Briscoe, with Alfred Reeves as general manager. The association will hold its tenth international motor car show at the Grand Central palace, New York.

The formation of the Manufacturers' Contest Association for the purpose of taking a concrete interest in racing and contest matters was unanimously approved and a resolution was adopted recommending that all members of the A. M. C. M. A. join and support the new organization, which has an agreement with the A. A. A. regarding contest matters. It was decided further that the members should be asked to take the matter up with their dealers throughout the country, that the actions of the Manufacturers' Contest Association may be fully supported. There was a large amount of routine business transacted, the meeting being in session until late in the day.

In attendance at the meeting were H. O. Smith, chairman; C. G. Stoddard, S. H. Mora, G. Vernon Rogers, W. H. Van Der Voort, Benjamin Briscoe, R. E. Olds, Charles Lewis, C. C. Hanch, and Alfred Reeves, general manager. The following committees for 1909 were announced by Chairman Smith:

Show committee—R. E. Olds, Reo Motor Car Co., chairman; S. H. Mora, Mora Motor Car Co.; Benjamin Briscoe, Maxwell-Briscoe Motor Co.

Tours and races—W. H. Van Der Voort, Moline Automobile Co., chairman; A. C. Newby, National Motor Vehicle Co.; V. A. Longaker, American Motor Car Co.; Walter E. Marmon, Nordyke & Marmon Co.

Good roads—Charles Lewis, Jackson Automobile Co., chairman; James C. Couzens, Ford Motor Co.; R. M. Owen, Reo Motor Car Co.; H. B. Krenning, Dorris Motor Car Co.

Legislation—C. G. Stoddard, Dayton Motor Car Co., chairman; A. C. Newby, National Motor Vehicle Co.; R. A. Palmer, Cartercar Co.; R. E. Graham, Acme Motor Car Co.; Walter Hildredth, Holsman Automobile Co.; Walter S. Austin, Austin Automobile Co.

Advertising and publicity—J. N. Willys, Overland Automobile Co., chairman; G. B. Louderback, Buckeye Mfg. Co.; Theodore P. Bailey, St. Louis Car Co.; Leon M. Bradley, New York office; Charles E. Duryea, New York office.

Membership—S. H. Mora, Mora Motor Car Co., chairman; Morris Grabowsky, Rapid Motor Vehicle Co.; W. H. Van Der Voort, Moline Automobile Co.

Finance—James Couzens, Ford Motor Co., chairman; W. G. Morse, Atlas Motor Car Co.; J. B. Bartholomew, Bartholomew Co.

Standardization and technical—George A. Weidely, Premier Motor Mfg. Co., chairman; John D. Maxwell, Maxwell-Briscoe Motor Co.; Henry Ford, Ford Motor Co.; Max H. Grabowsky, Grabowsky Power Wagon Co.

Freight and transportation—G. V. Rogers, Mitchell Motor Car Co., chairman; Harry Knox, Atlas Motor Car Co.; H. W. Mack, Mack Brothers Motor Car Co.; R. Harry Croninger, Pennsylvania Auto-Motor Co.; J. N. Willys, Overland Automobile Co., in conjunction with the traffic department of the N. A. A. M.

Tires—W. S. Marmon, Nordyke & Marmon Co., chairman; James Couzens, Ford Motor Co.; Frank Briscoe, Brush Runabout Co.; O. Stevenson, York Motor Co.; S. H. Mora, Mora Motor Car Co.

Agencies—W. H. Van Der Voort, Moline Automobile Co., chairman; A. R. Welch, Welch Motor Car Co.; H. R. Mallow, De Luxe Motor Car Co.; Frank L. Pierce, Gaeth Automobile Co.; H. B. Larzelere, Chadwick Engineering Works.

### JOY RIDER PUNISHED

Los Angeles, Cal., April 9—The local dealers recently played a grim practical joke upon a man who was accused of being a professional joy rider and who, it is alleged, had circulated a story to the effect that a certain make of car had broken down or ''fallen to pieces,'' as the story went. One of the dealers discovered that one of his supposed prospects had been making the rounds, getting free rides after he had ordered a car and had had it altered to suit him. Also he heard that the prospect was knocking the machine which he was supposed to have bought. Then this agent got busy and collaborated with his fellow dealers. When the joy rider appeared for a demonstration at the store of one of the agents the plot had been laid. He was taken aboard along with a newspaper man and photographer, and the party headed for the chalk hills, 20 miles out of the city. There they met the accusing dealer, who had a heated talk with the joy rider, which resulted in the latter signing a statement to the effect that he had circulated false reports about the car that was supposed to have fallen to pieces and that they were deliberate lies. Then the dealers informed the joy rider he would have to walk home. They then climbed aboard their cars and left the joy rider to his fate.

### ENTER MEMPHIS' CLIMB

Memphis, Tenn., April 12—Five events have been fixed for the hill-climb given under the auspices of the Memphis Automobile Dealers' Association, April 17, at Raleigh. Cars eligible for the fifth event are the first two to finish in each of the other four. Citizens of Raleigh have assured the association they highly favor the hill-climb, and will see that there will be no traffic the afternoon of Saturday, April 17, to interfere with its success. A trophy cup will be given the winner of the first four events, while the winner in the fifth will receive only a blue ribbon, emblematic of the city championship. The association has appropriated $105 to buy the trophies. Entered already are the following:

First class—Maxwell, Buick, Ford, Reo, Mitchell, Cadillac, Reliable Dayton, Holsman.

Second class—Overland, Chalmers, Cadillac, E-M-F, Mitchell, Pope-Tribune, Dixie Flyer, Stoddard-Dayton, White steamer, Olds, Buick, Rambler, Maxwell.

Third class — Premier, Stoddard-Dayton, Chalmers 40, White, Olds, Rambler, Studebaker.

Fourth class—Welch, Packard, Premier, Thomas, Mentges, Stoddard-Dayton, Pope-Toledo, Peerless, White, Stearns, Studebaker.

The dealers also will hold an endurance run on May 22, the distance to be from 125 to 150 miles.

# The Week at Nice

KILOMETER TRIALS—JOERNS IN OPEL DOES :27 3-5

NICE, March 30—Opel and Sizaire-Naudin cars were the striking winners at the meeting of Nice. The German Opels were by far the fastest among all of the three scores that took part in the speed and hill trials, while the Sizaire-Naudin little vehicles proved themselves superior in speed to almost any other car, barring the Opel, although they are of the mono-cylinder type.

The fastest time made in the kilometer event, from a flying start, was that of Joerns in an Opel, who covered the distance on a slippery course and in the rain in :27⅗, thus averaging 81.1 miles an hour. In the La Turbie hill-climb Lindpainter, driving an Opel, covered the course of about 9 kilometers—5.5 miles—in 6:00⅕. The conditions were just the reverse of those which prevailed last Thursday, when the weather was ideal and the course in fine shape.

This year's week at Nice will go down in the history of this old established affair as having been one of the most successful, although few of the star drivers were participants. It seems that this is just what the promoters desired because the presence of the crack drivers would—so they claim—keep lots of amateurs away.

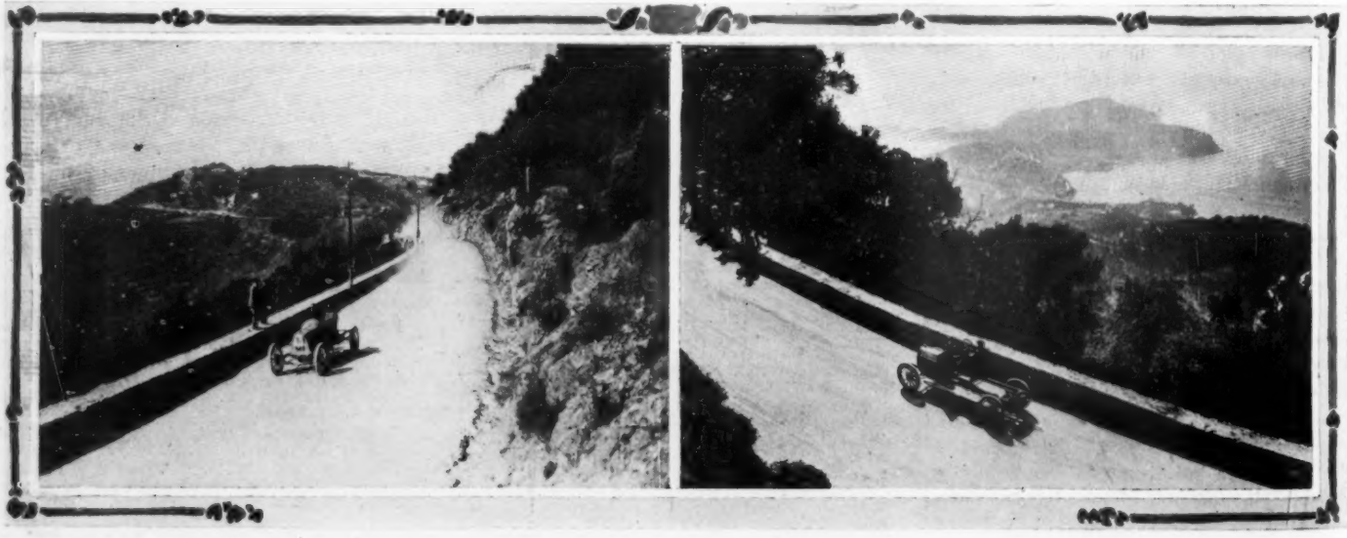
Thirty-nine cars started in the kilometer event on Thursday, notwithstanding the really bad weather. As usual this speed test was held on the famous Promenade des Anglais, but a little further down on the well-known course on what is now known as the Promenade de Californie. There were many spectators—real enthusiasts who do not mind even hail and rain, tourists—among whom were some Americans—and the usual number of hang-arounds and rubbernecks. The cars were divided into nine classes according to number of cylinders, the bore and stroke, or racing cars.

The trials resulted in victories for the Sizaire-Naudin in the single-cylinder class with a mark of :43⅕; for the Bayard-Clement in the two-cylinder class in :57⅕; for the Aries in the four-cylinder class with cylinders 2.9-inch bore and 3.3-inch stroke, the time being :44⅕. In the four-cylinder class, 3.38-inch bore, 3.7-inch stroke, the Laurin-Klement was a winner in :45⅕; in the four-cylinder class, 3.77-inch bore and 4.13-inch stroke, the Berliet was first in :54⅗; an Opel negotiated the distance in :35⅕ in the four-cylinder class with 4.17-inch bore and 4.5-inch stroke; the record of the day in the seventh class was carried off by another Opel in :27⅗, limitations for this class being 4.56-inch bore and 5.1-inch stroke. The six-cylinder class was a victory for the Rochet-Schneider, its time being :44⅖.

In the Turbie hill-climb, which measured exactly 4 miles, the same classification was used and the winners in their respective classes were as follows:

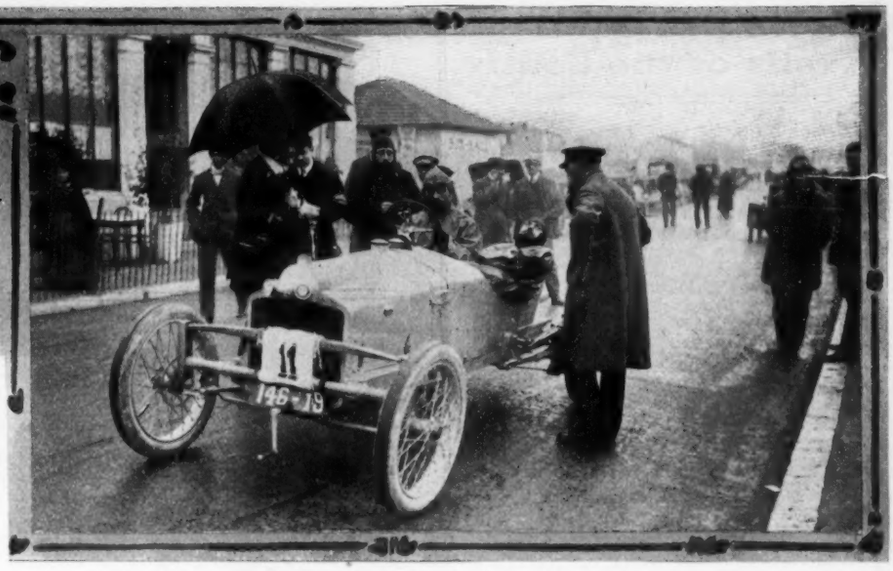
Class 1, Sizaire-Naudin, time 6:12 2-5, 38.6 miles per hour. The only car to make faster time was the Opel in class 6, which made the ascent in 6:00 1-5, at the rate of 40 miles per hour.
Class 2, Bayard-Clement, time 13:57 4-5.
Class 3, Bayard-Clement, time 8:07 2-5.
Class 4, Laurin-Klement, time 6:43 1-5.
Class 5, La Buire, time 7:10 2-5.
Class, 6, Opel, time 6:00 1-5.
Class 7, Pilain, time 7:38 4-5.
Class 8, Rochet-Schneider, 6-cylinder, time 7:21.

All told thirty-eight cars faced the starter. This climb is most spectacular, the course forming a large S. It is a difficult one with plenty of abrupt turns and some fine stretches of good going. There were several cars upset, the driver of one—a Mors—having a miraculous escape



LINDPAINTER'S OPEL IN CLASS 6 — TURBIE HILL CLIMB — ROCHET-SCHNEIDER IN CLASS 8

# Kilometer and Hill Trials



KILOMETER TRIALS—SIZAIRE-NAUDIN, MAKES DISTANCE IN :43 1-5

from serious injury. The car was going at 40 to 45 miles an hour and had just come around a turn into a stretch when, owing to the centrifugal force—so Driver Hellut said—the car skidded and went into the slope which borders the road to the left and then overturned. Lucky it was that the steering gear did not break, otherwise the driver might have been crushed. He escaped without injury, though.

## NAMING ENGINES BY EXHAUST

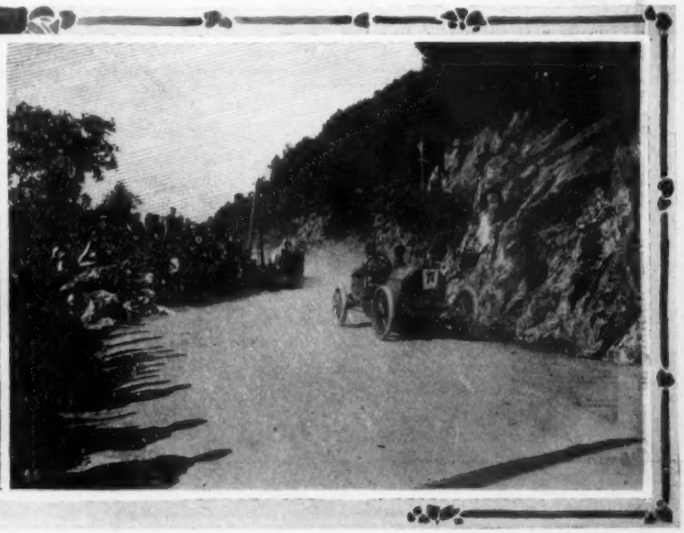
Paris, April 3—Distinguishing the make of an invisible motor car merely by the sound of its open exhaust proved to be a more difficult task than the contestants had anticipated. There were twenty-two competitors united in a Parisian garage last Sunday morning, and twelve different cars, varying from a one-cylinder Sizaire to a 60-horsepower Mercedes, on which the twenty-two had to try their acoustic powers. Each motor was started up in turn before the competitors and allowed to run for a few seconds with its exhaust pipes removed. The names of all the cars except one had been announced in advance, in order to give the intending competitors an opportunity of training. The exception was Charles Y. Knight's sliding-valve engine, built by the Daimler Co., of England; when the time came for it to give the preliminary unmuffled bark, the mechanic was still struggling with the exhaust pipe connections, and to save time, the competitors were sent behind the heavy curtain without having heard the notes of the exhaust. The engine being quite new to France, it is doubtful if any of the mechanics present were acquainted with its sound.

The first car to be run alongside the heavy curtain behind which the competitors were massed was a four-cylinder Minerva, which proved one of the most difficult to recognize in the whole group. A 1909 four-cylinder Renault followed, and for the space of 60 seconds abandoned its pretension to being the most silent car in the world. A Bayard-Clement quickly took its place, and added further variety to the exhaust solos. The little Gregoire two-cylinder must have been an easy one for the men behind the curtain, for it was the only twin-cylinder under test. The Sizaire-Naudin was equally easy, for there was an unmistakable harshness from its high-speed, high-compression engine. A large Panhard emitted its cheerful, healthy hum, contrasting strongly with the harsher and sharper bark of the 1909 Mercedes which immediately followed. The little Lion-Peugeot one-cylinder, too, made a strong contrast with the Sizaire-Naudin, although the two were almost identical in power and bore of cylinder. The Delage diminutive four-cylinder had more of a hum than a roar, and should not have deceived any who had previously listened to its sound. The Knight sliding-valve engine, that nobody had heard before, and that was looked upon as the stumbling block of the competition, proved to have such a soft, muffled sound, even with the exhaust box removed, that nobody could be deceived. A four-cylinder Gregoire added its contribution to the solos, and the last note to be heard was the strident cry of a four-cylinder Mors.

The competition was rendered the more difficult from the fact that the exhaust piping was not entirely removed in all cases. This was left to the appreciation of the mechanics.

After examination of the papers it was found that the winner was Victor Gros, a 19-year-old mechanic, who had correctly named eight of the twelve machines.

AT THE START OF COURSE



TURBIE HILL-CLIMB

JOERNS IN THE GERMAN OPEL

# Motoring on Sand Trails of the South

*THE motor tourist who is content to follow the beaten paths of motor car travel has a lot of interesting pages missing from his log book. The real delight of motoring is, for many enthusiasts, found in the exploration of primitive highways, even in the face of trials and tribulations, such as did Mr. and Mrs. E. M. McConaha, of Richmond, Ind., when they left their easy pikes for a jaunt over southern mountain and river, through swamp and sand trails, to drive their car to the door of Comfort cottage, Sanford, Fla. Both are energetic devotees of Hoosierdom motoring. They galloped over the good pikes of Indiana until they got restless with the ease of things. So they set their eyes on Comfort cottage. One morning late in October they piled the necessities of the trip aboard and were off for Dixie, via the pike to Louisville, Ky.*

*"Let's don't go the way that everybody goes," suggested one and the other expressed a desire to visit historic scenes in the southland. The twilight had come over Louisville when they crossed the Ohio river bridge. They wanted to reach Shelbyville, Ky., 32 miles out of Louisville that night. After a few days of idling in Shelbyville, they again started south. They headed for historic Bardstown, there to set wheel on the famous Louisville and Nashville pike. They were in no hurry and played along among the Kentucky towns as if all their life was one sweet holiday. There's no use in hurrying when you're out for the fun of the thing. They reveled in scenes of Kentucky village and farm life and finally rounded into Hodginville, the quaint little town in the heart of the grand old commonwealth that was the birthplace of Abraham Lincoln.*

*At Hodginville both drank in the stories the natives told about Lincoln's boyhood. A few miles to the east of the little old-fashioned courthouse was the Lincoln farm, where Abraham was born. Somewhere, on the hill above the place where the cabin stood, Abraham's little sister lies buried in an unmarked grave, one of the tragedies of poverty. The Lincoln farm is now owned by the Lincoln Farm Association, an organization of American citizens who wished to see the farm preserved as a park of patriotism. In Hodginville, too, is an old-fashioned hotel or tavern, in which they still serve hot wheat biscuits, done to tickle the palate of the most fastidious.*

FROM INDIANA TO FLORIDA

ENTERING LAKE CITY, FLA.

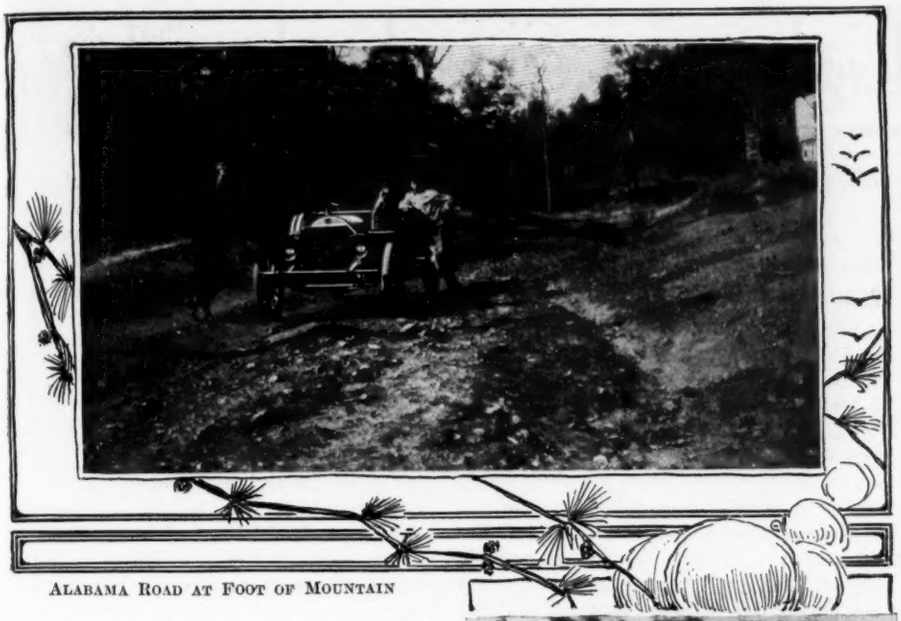
*Reluctantly they turned southward again, for Hodginville had offered much of interest. Now they sought the Louisville and Nashvillle turnpike again and soon came to picturesque Green river, famous for the tobacco that grows along its banks, and had to pay 40 cents toll for the privilege of crossing the bridge. Bear Wallow, Cave City, Glasgow Junction and old Bowling Green were entered in the order named as they sped on to Nashville, going through country that saw much of strife during the civil war and during that more recent unpleasantness, the raids of the night riders.*

*The way led on down the historic old stage road, through Franklin, and finally into Nashville, their Premier car having covered 142 miles that day. The tourists jaunted around Nashville for a day, taking in the Vanderbilt university, Belle Mead stock farm—home of General Jackson—and other sights of interest, for Nashville offers much that is attractive.*

TYPICAL SCENE NEAR HUNTSVILLE, ALA.

IN SAND DITCH, ONE OF THE ADVENTURES

# Hoosier Tourists On An Unique Trip



ALABAMA ROAD AT FOOT OF MOUNTAIN

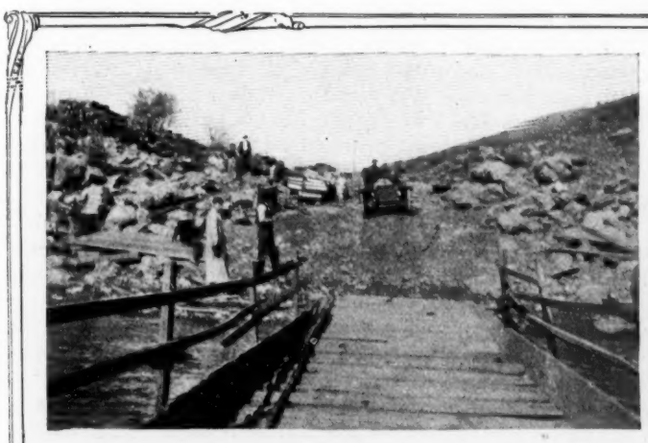
*The following day the run headed towards Huntsville, Ala., the route being via Lavergne, Murfreesboro, Shelbyville and Fayetteville, Tenn., and Meridianville, Ala., the odometer registering 117 miles from Nashville to Huntsville. Then the hunt for Macon, Ga., began, and then, too, followed a thrilling journey over the mountain trails, the route being via the distressing clay roads of Alabama and Georgia. It was a hard day's journey that ended at Gadsden, Ala., that night, the trip embracing 85 strenuous miles over mountains, across old-time sweep oar ferries, up corduroyed hillsides and into the mountains. The roads wind in and out, frequently becoming so narrow that two vehicles cannot pass except at little meeting stations. It is here in the mountains that the skill of a driver gets its best test. The ferry over the Tennessee river at Deposit is used but little except by ox-teams and the vision of a motor car coming down for transportation across the river was a sight that made the ferryman's eyes open. The car was carefully placed in the middle of the old craft and soon it was sweeping across the beautiful Tennessee.*

CROSSING TENNESSEE RIVER

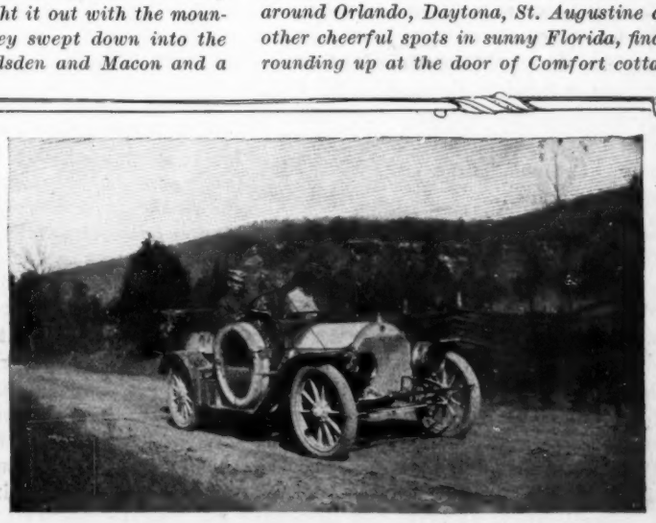
*The first taste of swamp road touring came after they left Gadsden, Ala. The day before they had fought it out with the mountain trails. Now they swept down into the swamps between Gadsden and Macon and a merry time they had of it. They traveled south of Chattanooga and west of Atlanta, going by way of Round mountain and Cedar Bluff. The roads were fearful, being made up of muck and rails. The route took the tourists over two other rivers, the Coosa and Chattahoochie, and they had to use ferries again to get across. On this run they traveled over 300 miles without stopping except at meal time, an entire night being given over to using a good stretch of road that was found near Macon. After a brief stay in Macon, the tour was resumed, the car being headed toward Valdosta, Ga.*

*New difficulties faced the tourists on this lap of the journey. They came into the detestable sand roads that lie south of Macon on the way into Florida. The farther south they got the deeper became the sands, but they were not to be denied. On they went through highways that would be called pig paths in other sections of the country. In many places trees and branches of the trees had to be cut away to allow the car to pass. The roads were merely trails used by ox teams through the sand lands. In several places the car sank axle deep in the sand and it required heroic efforts to extricate it. Once the car slipped from a piece of corduroy road into the ditch and it was only through the assistance of a good-natured negro and his ill-natured team of horses that the car was released from its sand and muck prison. The horses were so badly frightened that they were willing to pull the car out of its hole.*

*In Florida they encountered some of that state's famous black muck. Finally, on the fourteenth day out the car rolled into quaint old Jacksonville, and the figures on the odometer told them they had traveled 1,450 miles, the tour covering a period of 14 days of about as much fun as anybody could long for, even in the face of difficulties. From Jacksonville the car had easy going down around Orlando, Daytona, St. Augustine and other cheerful spots in sunny Florida, finally rounding up at the door of Comfort cottage.*



APPROACH TO FERRY NEAR GUNTERSVILLE, FLA.



CLAY ROAD NEAR NEW HOPE, ALA.

# Legal Lights and Side Lights

## GRADED TAXATION PROPOSED

THE Automobile Club of St. Louis has indorsed a bill which has passed the Missouri house and is now in a committee of the senate, providing a graduated tax for motor cars, based upon the horsepower of machines used in the state. The measure provides the following scale of taxes, payable annually: Twelve horsepower or less, $2; 12 to 30 horsepower, $3; 30 to 60 horsepower, $5; 60 to 120 horsepower, $7.50; 120 horsepower and over, $10.

Under the present state law a license costs $5 for all classes of cars, and is perpetual. Owners readily agree that this is not sufficient revenue. Assurance has been given that the bill, which was introduced by Representative Braswell, will meet with the approval of the senate. It will be reported by the committee this week. St. Louis owners and manufacturers alike say the proposed graduated scale would be fair to all.

## SEEK GOOD ADVICE

The committee on roads and bridges of the Massachusetts legislature were somewhat at sea relative to the motor law after the hearings, and so with a view to expediting matters, a subcommittee was appointed to tackle the matter. This subcommittee comprises Senator Hibbard, chairman; Representatives Nason, Holt, Tytus and Malley. The subcommittee began work right away along admirable lines, for instead of trying to frame a law on its own opinions, its members called in President L. R. Speare, of the A. A. A., and Colonel William D. Sohier, of the highway commission, for conferences. There were a number of things upon which the two men were agreed, therefore much progress was made. Some time this week it is possible that the bill will be drafted. It will be somewhat along the lines of the uniform bill. Where the fight will probably come in the house will be upon the proposed tax according to horsepower, as motorists are opposed to the one outlined in the bill by the highway commissioner.

## GEORGIA IS MODERN

The alleged custom of securing a board of farmers and horse traders to draw up motor laws will not be adhered to in Georgia. At the present time the state has no law, but this defect will be remedied at the coming session of the legislature, which is held during the summer. Phil Cook, secretary of state, is drawing up a bill which he will have introduced. Before perfecting it, however, he took the unusual precaution of finding out what the motorists of the state wanted. Through the papers he issued a call for the clubs to confer with him. This will be done, and a reasonable bill will be presented. What the legislature will do with it, however, no man knoweth.

## PENNSYLVANIA MATTERS

The Pennsylvania legislature, now in session at Harrisburg, is due to adjourn this week, and as is usually the case, has about 4 weeks' work to finish up in as many days. As a result many important measures are bound for the scrap heap simply through lack of time to push them through. But if it is in the wood Governor Stuart and the motorists will see to it that the cross-state highway bill, the governor's pet measure, and the new motor code are not among the bills to thus fall by the wayside. The former measure successfully passed the house last week practically as originally drafted, with the exception that the width was reduced from 60 to 45 feet. The senate, however, is kicking in the traces, and there promises to be a number of amendments offered, prominent among which is the placing of the construction of the highway in the hands of a commission of three men—at $8,000 per annum each—who, with the governor and the attorney general, will also select the route to be followed. There are several other proposed amendments, and the bill's friends in the house fear that it will be so transmogrified in the senate that the governor will veto it. It went through the latter branch on first reading, as amended, last Friday night, and if it comes back to the house in its present shape there will surely be a motion to non-concur and the time for adjournment may come before the two conference committees can straighten things out.

The Townsend bill, which originated in the house, was passed finally on special order in the house last Wednesday, 137 to 24, and was sent to the senate. The roads committee of that body immediately sidetracked it, and returned to the bill introduced by Senator Grim. Each branch prefers the bill which originated with it, and there is much concern lest both fail before the conferees of the two houses can agree on a compromise. Senators say their bill will bring in much greater revenue, the Grim measure licensing operators, while the Townsend measure registers the cars. It has been figured out that there are nearly twice as many operators in the state as there are motor cars. Another point of difference is the disposition of the fines, which in the senate bill go to the state, while the house measure divides them up, those for speeding going to the townships, the rest to the state. In the matter of speed regulation there is very little difference between the two—the senate measure providing for maximum and minimum limits of 24 and 15, respectively, with the exception of certain "dangerous and congested points," where a limit of 10 miles an hour is named; the house bill simply naming 24 miles and 10 miles as the two limits. The senate committee on roads on Friday favorably reported the Jones dirt roads bill after lopping $500,000 off the original $1,500,000 appropriation.

## LATEST BAR HARBOR LAW

The law to exclude motor cars from Bar Harbor, which was passed by the last session of the Maine legislature, is going to be tested. A few days ago S. H. Mayo, of Southwest Harbor, drove his car into the town over the Eagle road, which is closed to the use of motor cars by vote of the town. Mr. Mayo was arrested and arraigned in the municipal court, where he entered a plea of not guilty and waived examination. He was found guilty and ordered to pay a fine of $5 and costs, from which he appealed to the supreme judicial court at Ellsworth, to be held April 13. It is understood that the case will not be tried by that court, but will be taken to the law court on an agreed statement of facts.

## DRAFT OF CONNECTICUT BILL

The new motor bill drafted by the committee on roads, rivers and bridges of the Connecticut legislature, which was introduced last Tuesday, contains many changes. First of all, it provides for the establishment of the office of commissioner of motor vehicles. All registrations expire December 31 of each year, the fees being based upon horsepower, $6 being charged for less than 20 horsepower; from 20 to 30, $10; from 30 to 35, $15; from 35 to 40, $20; from 40 up, $30. For the registration of every commercial motor vehicle or motor vehicle owned or controlled by a liveryman, and every motor truck regardless of the horsepower thereof, a fee of $5 will be asked. The registration fee of motor cycles is $1. A dealer's license costs $20 and a manufacturer's $100. A driver has to pay $2 for his license. Non-residents are provided for by giving them the right to use the highways of the state for 10 days in 1 year without taking out a Connecticut license. Cut-outs are forbidden and the usual provision is made for operating the car and passing pedestrians or horse-drawn vehicles. Joy riding is forbidden and no city, town or borough can enact ordinances respecting the speed of motor vehicles. The fines imposed for violation of the law go to the maintenance of the roads after the cost of maintaining the department has been deducted. As to the speed proposition, the bill says: "No

person shall operate a motor vehicle upon the public highway of this state recklessly or at a rate of speed that is greater than is reasonable and proper, having regard to the width, traffic and use of highway, or so as to endanger the property or the life and limb of any person. If the rate of speed of a motor vehicle operated on a public highway of this state exceeds 25 miles an hour for the distance of ⅛ mile, such rate of speed shall be prima facie evidence that the person operating said motor vehicle is operating the same at a rate of speed greater than is reasonable and proper and in violation of the provision of this section. And no person shall operate a motor vehicle upon the highways of this state when approaching a crossing or intersecting public highway or when traversing a bridge or a sharp turn or steep descent or a curve in the highway where the operator's view of the road and traffic is obstructed, at the rate of 10 miles an hour. No person shall operate a motor car upon the highways of this state in passing any street railway car on the same side of the car on which passengers are being received or from which passengers are being discharged at a rate of speed greater than 3 miles an hour.''

### WOULD REVOKE LICENSE

Henry B. Shaw, state's attorney for Chittenden county, in Vermont, has written to Secretary of State Guy W. Bailey, recommending the withholding of the license from Albert T. Henderson, of Burlington, to operate a car. Mr. Henderson is one of the local dealers in Burlington. Mr. Shaw, in his letter, called attention to the fact that while Mr. Henderson was operating a car last fall he met with an accident that caused the death of A. J. Taylor and injuries to R. J. Ross and Mr. Henderson. He stated that the accident was due to speeding, and for that reason Mr. Henderson should not be given a license to drive this season.

### REGULATING GARAGE BUILDING

The Iowa legislature has been considering a bill giving cities and towns the power to prohibit or regulate the erection of garages. The bill, which is short and to the point, is as follows:

Section 1—Cities and towns, including cities acting under special charter, shall have the power to regulate or prohibit the erection of any building to be used for the purpose of a livery stable or public garage, and the maintaining of any livery stable or public garage where horses, vehicles or motor cars are kept for hire or storage upon any lot or property within the city limits within a distance of 100 yards of any dwelling house.

### MUST BUY STATE TAGS

Toledo motor policemen are keeping their weather eyes peeled for owners who have failed to comply with the state law and city ordinance in regard to registration and licenses. Last week Mayor Whitlock received a complaint from Fred H. Caley, registrar of motor cars in the motor car department of the secretary of state, in which complaint was made that many Toledo owners have failed to equip their cars with tags and asking that these be rounded up. Chief Knapp has instructed the motor cops to get busy, and there probably will be a wholesale business in tags for some time, as Chief Knapp declared he believed that fully half of the owners of the city have failed to take out licenses for their machines.

### DEATH TO JOY RIDING

Michigan will soon have a stringent law against joy riding, making it a felony for any person to drive away a motor car without the consent of the owner and providing a sentence of 2 years for any person convicted of the offense. The bill was finally passed by the legislature 2 weeks ago and is now awaiting the signature of the governor. Under the provision of the state constitution it will take effect 90 days after the final adjournment of the legislature.

### TALK ON SMOKE LAW

Representatives of the Philadelphia Automobile Trade Association and the Quaker City Motor Club appealed to the commissioners of Fairmount park last week to modify the ruling as to smoke-emitting cars. It was pointed out that it was impossible to at all times prevent smoking, some engines—new ones especially—frequently requiring liberal lubrication to get them into good running shape, and that at times a slight defect in the combustion apparatus may cause a temporary surplusage of smoke, which can later be remedied. The injustice of the too strict enforcement of the rule was dwelt upon, and the commission promised to look further into the matter before announcing its final decision in the matter.

### SIGNS MUST PAY A TAX

Manufacturers of motor cars and accessories who are accustomed to advertising their product on sign boards will be interested to learn that a bill is now pending in congress providing for a license tax on such display signs. It provides that there shall be collected and paid into the United States treasury an annual license fee of 2 cents per superficial square foot or fraction thereof upon each posted display advertisement or sign of any article of commerce or trade entering or advertised to enter into interstate commerce, whether such advertisement or sign be painted, printed, or marked upon buildings, wood, paper, cloth or other material displayed for the purpose of advertising any article described upon said sign. The license fee is to be paid annually on or before May 1 each year.

### SPECIAL SESSION FOR ROADS

The Wisconsin legislature will hold a special session next fall to pass on various good roads bills. The most important measure is that introduced by Senator E. E. Browne, of Waupaca, which would appropriate $300,000 for the beginning of a system of state aid for highway improvement. The University of Wisconsin highway department is coöperating with the legislative committee to perfect the bill. The bill provides that $300,000 shall be set aside each year, one-third to be equally divided among the counties; another $100,000 apportioned on the basis of the area of counties, and the remainder on the basis of real estate value. Counties that do not apply for state aid shall waive the right of participation and the amount shall be turned back, to be redistributed among the counties that apply. Control of the fund shall be vested in a commission composed of various state officials, who shall act ex-officio without pay. This bill seems to have excellent chances of passage.

### MARYLAND STILL ARGUING

There is still some little dissension between the motorists and the motor car commission of Maryland over the question of taxation. The bone of contention now is in regard to the maximum tax of $24 for the largest cars in the state. The compromise reached at a meeting of representatives of the Automobile Club of Maryland and the Motor Car Commission last week, seems to be satisfactory to the motorists with the exception that they think the rate of $24 a year for the big motor cars should be lowered. The indications are, however, that the commission will not reduce the figure.

### COLGATE BILL PASSES

In the New Jersey legislature on Friday last the Colgate joy riding bill finally passed the senate and was sent to the governor. This measure makes it a misdemeanor to take out a motor car without the consent of the owner, to exceed the speed limit on a wager, or to wilfully display a false registration number, and provides for a maximum penalty of 3 years in the state prison for such offenses.

### BLOW FOR TWO-WHEELERS

Michigan motor cyclists are hard hit. Unless the Schantz motor car bill, which is now under consideration, passes the legislature and is signed by the governor motor cyclists must conform to all the provisions of the present motor car statute. In an opinion handed down by the state supreme court at Lansing in a case from Detroit it is held that motor cycles are motor vehicles and come under the provisions of the motor vehicle law. It is held that they must pay a tax of $1, that they must bear two headlights on the front of the machine and a tail light on the rear. They must also bear their official number on placards on both front and rear. Up to the present time the machines have not been even taxed. The Schantz bill, which is now before a legislative committee, exempts motor cycles from its provisions and, as the law is intended to supersede the present motor car law, motor cycles would not even be taxed should it pass.

# The Readers' Clearing House

**EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.**

## USE OF SOLID TIRES

OUGH, NEB.—Editor Motor Age—What size solid rubber tires should cars weighing respectively 700 and 1,000 pounds be equipped with? Is there any way to secure sufficient traction with common steel-tired buggy wheels, and if so, how? I have been advised that flash boilers are not suitable for some cars on account of their insufficient pump capacity. Could this not be easily remedied by equipping with an auxiliary independent pump? I have read of burners for steam motor car generators which burn wood or coal. Are they practicable and do they reduce fuel expenses? What is meant by single-acting and double-acting motor car engines?—Sanford E. Frazell.

One and a quarter inch solid rubber tires would be amply large for a vehicle of this type. There is no method of securing additional traction with steel buggy tires other than having them made with angular or transverse ridges, which would greatly reduce their weight, and in time these ridges would wear smooth. Motor Age has no knowledge of this ever having been done. There is no difficulty with the pump in conjunction with flash boilers. In fact, the majority of them are so arranged that the pump capacity is in excess of the generator capacity, so that a by-pass has to be fitted, permitting a fraction of the water to return by a circuit to the pump, instead of going to the generator. Steam motor cars are at present in use in Central Africa in which wood is used as the fuel. This has been resorted to because of the long inland trips such vehicles have to make where it is impossible to secure supplies of gasoline. It would be utterly impractical to use wood for fuel on a pleasure car. Coal is used as a fuel on heavy commercial cars in England, Germany and France.

## ANTI-FRICTION TIMER

Aguascalientes, Mexico—Editor Motor Age—I illustrate in Fig 1, next page, a ball-bearing timer which I have invented and have run for over 3,000 miles without a miss from the timer. It consists of a fiber ring, R, in which are imbedded contacts C for connecting with the spark plugs of my two-cylinder motor; the revolving part, H, carries on one side a radial tube, T, in which is a sleeve, S. In the outer end of the sleeve is carried the contact ball B, the rotation of which is facilitated by a small race of ball bearings, D. The usual helical spring, S, tends to keep the ball, B, constantly against the ring R. A particularly important feature of it is the brush, B1, located diametrically opposite to the ball B and intended to brush any particles of dirt off which might collect on either side of the contact C and thereby prevent a perfect contact. This brush is adjustable, so that should wear take place it can be quickly compensated for. The brush feature, as well as the race of ball bearings back of the contact ball B, is looked upon as the important feature of the timer.—A. B. Culver, Jr.

## NOT THERE NOW

Paullina, Ia.—Editor Motor Age—Will Motor Age inform me if the Superior Auto Tire Co., 1612 Michigan avenue, Chicago, is still in existence?—A Subscriber.

The Superior Auto Tire Co. is no longer located at the address given above, and Motor Age is unable to state whether or not the concern is still in existence.

## BUICK RECORD AT NEW ORLEANS

Chase, Kans.—Editor Motor Age—In regard to the recent feat of the Buick at New Orleans, 100 miles in 1:42:39 2-5. Is this record the fastest for gasoline-driven cars only, or for both gasoline and steam? What is the record for 100 miles for a steam-driven car? Will Motor Age give me the specifications of the Buick car and how it was prepared for the race?—F. L. Willard.

The mark established by the Buick at New Orleans is a competitive track record and beats the century mark of 1:53:21 4-5, made November 4, 1905, by Clemens in a 30-horsepower National at Indianapolis. The fastest 100-mile record on the books is that made at Ormond last year by Maurice Bernin in a 60-horsepower Renault, who put up 1:12:56 1-5. The car Burman drove at New Orleans was a medium-priced stock machine of 30-horsepower, the engine having a bore of 4½ inches and a stroke of 5 inches.

## FLYWHEEL SIZE AND WEIGHT

Hastings, Mich.—Editor Motor Age—I have a 16-horsepower car, double opposed motor with a 4½-inch bore and stroke, but for some reason I am unable to get speed from it. The flywheel weighs about 120 pounds and the best speed I can get from the motor is about 900 revolutions. The valves are 1¼-inch automatic, not mechanical. If I should reduce the weight of the flywheel, say about 40 or 50 pounds, what would the effect be? It has occurred to me that it would be beneficial and I would get more speed from the motor with a correspondingly increased power, but cannot find any rule by which to work.—F. R. Pancoast.

If the speed of the motor and its degree of compression be known, the diameter of the flywheel or the weight of the flywheel rim may be readily ascertained from the following formula: The weight of the rim of the flywheel is the only portion which enters into the following calculations, the weight of the web or spokes and hub being neglected. Let M.P be the mean pressure of the compression, and A the area of the cylinder in square inches. If S be the stroke of the piston in inches, and N the number of revolutions per minute of the motor, let D be the outside diameter of the flywheel in inches, and W its required weight in pounds, then

$$W = \frac{M.P \times A \times S \times N}{2560 \times D}$$

Motor Age believes your trouble lies in the dimensions of your valves. According to Brook's Automobile Handbook: Atmospheric or suction operated admission valves require to be of somewhat larger diameter than mechanically operated admission valves, for two reasons: first, that the incoming charge has to lift the valve from its seat and keep it suspended during the suction stroke of the motor piston, and secondly, on account of the resistance offered by the valve spring, which tends at all times to keep the valve on its seat. For an atmospherically operated admission valve, which will insure practically a full charge in the motor cylinder, the formula should be

$$D = \frac{B \times S \times R}{12{,}750}$$

## INSPECTING CAR TIRES

Akron, O.—Editor Motor Age—When a car is taken out in the spring we recommend the removal of the tires from the wheels; this done, a close examination of the cases should be made, locating any cuts that expose the fabric. These should be repaired at a branch house or sent to the factory. Neglect in this will cause deterioration of the fabric and soon result in the complete destruction of the casing. Before storing the cases it is advisable to wash the outside of them with a little gasoline; this will remove any traces of oil, which, if left on the tire, will have a tendency to soften and destroy the rubber; this done, it is best to wrap the cases in any light muslin or burlap and place them in a dry room out of the direct rays of the sun—a dark room is, of course, preferable. A temperature ranging from 30 to 40 degrees is best to prevent oxidation.

Tubes should be laid flat on a shelf in a dark cupboard, care being taken not to have any weight rest on them. The same temperature as above will apply to tubes as well. The rims, if rusted, should be thoroughly cleaned and sandpapered, then painted with liquid graphite—common stove polish will answer. In case the tires are not removed from a car during winter the car should be jacked up so that no weight rests on the tires and part of the air released to relieve the strain on the casing, leaving only sufficient pressure to keep the tire tight and in shape. Unless some pressure is retained the tube will have a tendency to fold and is liable to crack when inflated again.—B. F. Goodrich Co.

### BLUE BOOK INFORMATION

Richibucto, N. B.—Editor Motor Age—Through the Readers' Clearing House will Motor Age give me the address of a concern manufacturing buffers for polishing the brass work on motor cars. In what Blue Books are the roads of New Brunswick and Nova Scotia given? Kindly explain how the spark is advanced in an Eisemann high-tension magneto.—H. O'L.

The connection from Portland, Me., along the Maine coast to Calais, Me., St. Stephen, Fredrickton and St. John, N. B., is outlined in fairly definite terms in the Maine provinces section of the New England Blue Book, No. 2. Nova Scotia has never been carried in any road book. The spark is advanced in the Eisemann high-tension magneto by means of a lever working the make-and-break mechanism and allowing a displacement of 35 degrees. Brass polishing outfits are manufactured by several of the concerns manufacturing metal buffing tools.

### LIFT OF INLET VALVES

Brooklyn, N. Y.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me what is the proper distance an automatic inlet valve should open? I have a 40-horsepower, four-cylinder motor, which has automatic inlet valves, and I am doubtful as to whether I have them adjusted properly.—Perplexed.

In order to give a definite answer to your problem, it is necessary to have more data—the make of the motor, the bore and stroke, the size and style of the valves and the method of their operation. The following may help you: A mechanically-operated inlet valve requires one-quarter lift in comparison with valve diameter, and an automatic inlet valve one-eighth the valve diameter.

### DOUBLES AIR PRESSURE

Great Bend, Kan.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me how much the pressure increases in a 3½-inch tire which has been pumped up to 60 pounds pressure at 30 degrees Fahrenheit on a frosty morning, and then run, at say 20 miles an hour, until about noon, when the temperature has reached about 60 degrees Fahrenheit. —Louis Selle.

According to the laws of gases, pressure varies directly with the temperature if the volume remains constant. Doubling the temperature would result in a doubling of the pressure. The pressure would not, however, be double, owing to an increase in the volume of the tire caused by a stretching of the fabric. Should it be possible, however, to have a casing non-extensible, such as the volume would not increase by stretching, the air pressure would be doubled.

### AS TO MOTOR CAR WHEELS

Farmersville, O.—Editor Motor Age—Which is the better wheel to use on a 10-horsepower engine weighing 500 pounds with a speed of from 2 to 40 miles per hour—a tangent wire wheel having forty spokes, or a 28-inch artillery wheel? Will Motor Age kindly give me the names of a few cars having a 54-inch tread? From where to where does one measure for tread?—Subscriber.

It is impossible to state which would be the better wheel, not knowing the construction of either. If you expect to get 40 miles out of your car it would be necessary to use a strong wheel and a 30-inch size would be preferable. If a 28-inch size of the artillery type is used, its strength depends on its felloe size and its spokes; with a tangent wheel the strength is largely a matter of the size of spokes and material. The tread of a car is measured from the center of a right-hand tire to the center of a left.

### TWO-CYCLE PROPORTIONS

Battle Creek, Mich.—Editor Motor Age—The manufacturers of two-cycle gasoline motors do not seem to agree on the proportion of bore, stroke and compression space used, and it seems to me that there must be some certain proportion of the very highest efficiency. Will Motor Age, through the Readers' Clearing House, give results of actual tests from the best authority at hand? Will the same proportion apply to the four-cylinder engine?—E. A. Searles.

As to the proportion between bore and stroke of a two-cycle motor, that is largely a question of design. Some of the oldest two-cycle manufacturers make the bore greater than the stroke; whereas, others who build most satisfactory two-cycle engines have the same bore and stroke; and a third, equally responsible manufacturer, has the stroke longer than the bore. Three examples of this will suffice:

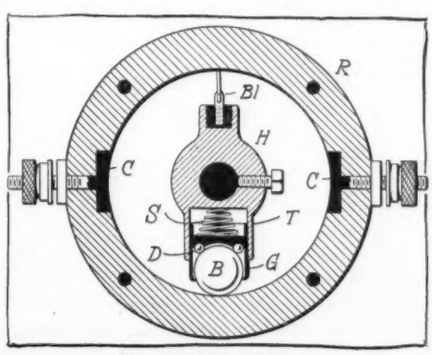



FIG. 1—ROLLER TIMER

Maker A, bore 4½ inches, stroke 4 inches.

Maker B, bore 4½ inches, stroke 4½ inches.

Maker C, bore 4 inches, stroke 5 inches.

Maker D, bore 5 inches, stroke 5 inches.

These examples are sufficient to show the variety of proportion that is possible and yet have cars that are entirely successful. In four-cycle construction there has been no chance of having a fixed proportion between bore and stroke, and it is certain that in two-cycle construction there is little chance of it either. In addition to bore and stroke there are so many other factors which enter into making a successful motor, that it is rare any two engineers can agree on a fixed relationship of bore and stroke.

### LIABILITY TO BACK KICK

Volga, S. D.—Editor Motor Age—Will Motor Age inform me if there is any more likelihood of a back kick from an offset cylinder crankshaft than one not offset, and, if so, would the kick be any more severe? Does the offset cylinder result in the development of more horsepower according to actual test, other things being equal, and if so, what is the comparison? Is skidding increased or lessened according to distribution of load, and if so what would be the ideal distribution of load relative to front and rear wheels? Can tubular front axles be made as dependable as the I-beam, or H section axles, without trussing? In the 1909 Glidden tour, what car or cars are to be used as pathfinders, also as pilot car, if known? How much, if any, of the route is determined? Is there any way to ascertain the correct weight of 1909 motor cars, aside from the manufacturers' literature? Is a correct list published?—C. W. Smith.

There is no more chance of back kick from an offset crankshaft than from one not offset, as a back kick is caused solely by too advanced ignition, a spark taking place before the piston has reached the end of the stroke. The kick would not be as severe, all conditions being equal, but it would be impossible to state definitely regarding the severity owing to the many factors that enter into the situation. The offset crankshaft has proven to give more power than the non-offset type, the extent of the increase of power depending largely on the amount of offset and the cylinder diameter and stroke. Some makers who use the offset crankshaft claim an increase of 15 per cent in the motor, which increase has been determined by actual experiment. Skidding is considerably affected by the distribution of the load with reference to the axles. A car with a body having great overhang back of the rear axle will skid worse than one without this overhang. Skidding is elim-

inated, largely, if the body and weight are carried between the axles. Tubular front axles may be made as strong as the I-beam, providing the proper size is used. The E-M-F car will be used as pathfinder in this year's Glidden and undoubtedly the Packard will be the pilot car. It is difficult to obtain the correct weight of 1909 cars, the only feasible way being from contest reports which give the weight of the cars as they are entered. It is a fact that in many cases catalog weights vary for the reason that one maker publishes the weight with one equipment and another with a different equipment.

## DISCUSSING THE DIFFERENTIAL

Chicago—Editor Motor Age—In Motor Age, issue of March 25, page 25, was a communication from Little Rock, Ark., headed "Strain on Differential," in which an owner asked for the relative strain on the differential in shaft and chain-driven cars, in which a three to one gear ratio is used, this ratio in the chain-driven car being obtained by the sprockets on the rear wheels being three times as large as those on the jackshaft. It would appear to me that with the same gear ratio the strain on the shaft-driven car would be three times as great as in the chain-driven type. In order to make myself clear in this regard I submit two illustrations, Fig. 2 showing the shaft-drive arrangement, and Fig. 1 the chain-drive. In the shaft-drive car let us suppose the outer road wheel, marked OW, in making a certain turn to the left is required to make one revolution more than the inner road wheel marked IW. If this is the case, then the beveled pinion A on the inner end of the driveshaft carrying the outer road wheel must make one rotation more than the beveled pinion B on the inner end of the driveshaft carrying the road wheel IW. In Fig. 1, the chain-drive car, the outer wheel OW has to gain one revolution on the inner wheel IW; but, because the speed reduction is between the sprockets S and S, it follows that the beveled pinion A on one-half of the jackshaft gains three revolutions on the beveled pinion B on the other half of the jackshaft, simply because, while the outer OW makes one revolution, the jackshaft sprocket S must make three, because of the three to one ratio. Now, comes the question of the relative strain on the two differentials. It must be admitted that the work to be done by the differential in making the turn in the chain and shaft-driven car is the same, and the question is, which differential undergoes the greater strain to accomplish this work? In Fig. 1, where the pinion A rotates three times pinion B, there is less strain on that pinion than in Fig. 2, where pinion A to do the work rotates but once more than pinion B. I take it the case is the same as in the common windlass used to raise a bucket out of well, where a large gear is on the windlass shaft and the operator turns a

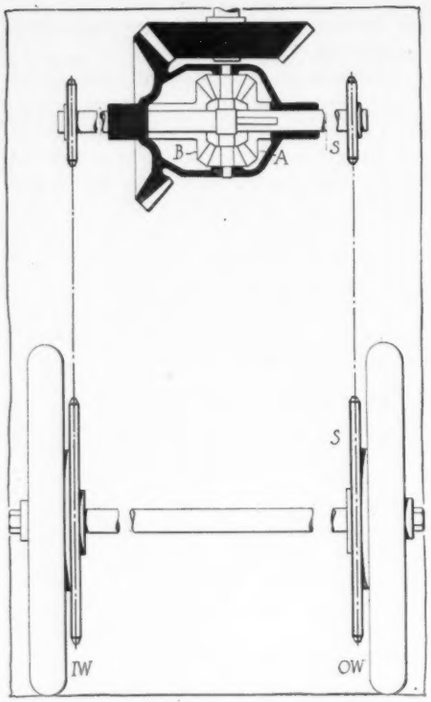
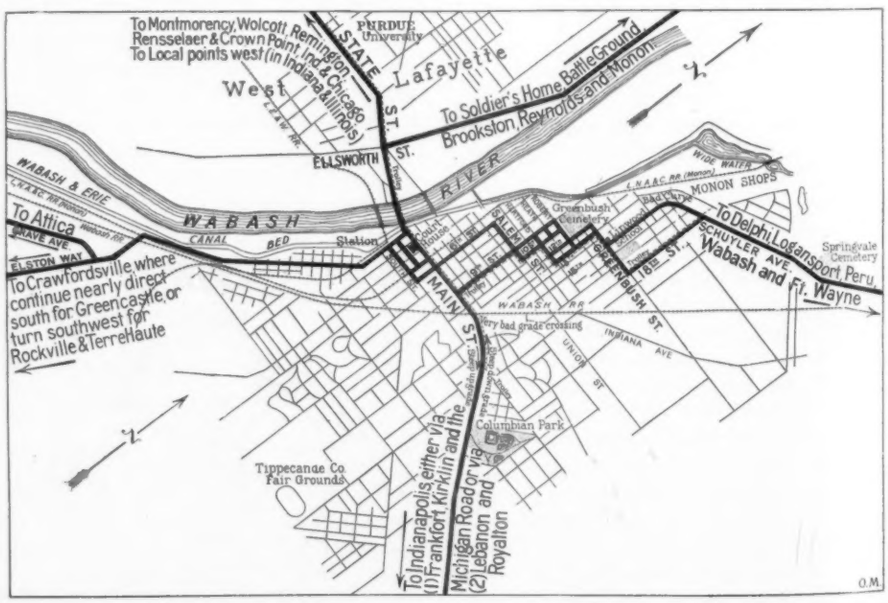



FIG. 1—DIFFERENTIAL STRAIN

crank on the shaft of a pinion in mesh with a large gear. The smaller the pinion in comparison with the gear, the easier it is to turn, and consequently the less strain on the pinion or the gear teeth. It takes more turns, however, with a smaller pinion, but it is not the number of turns so much as the pressure on the teeth that causes the strain. This crude comparison leads me to the conclusion that the strain on the differential in shaft-driven cars, Fig. 2, is practically three times that on the differential on a chain-driven car, Fig. 1. Some motorists may think because in the chain-driven car the pinion A has to gain three revolutions on the pinion B; whereas, in the shaft-driven car it has to gain but one, there must be more strain where three revolutions have to be gained. I cannot see that this is the case, as it is not the speed of rotation that causes the strain or wear, but, as already stated, the force or pressure on each tooth. Another valuable consideration that I see in conjunction with the chain drive is that the bevels for transmitting from the gear-set to the jackshaft are large and of practically the same size, so that the driving strain is transmitted over more teeth than in the case of the shaft-drive car, Fig. 2, where space is at a minimum and the pinion on the end of the driveshaft is very small in comparison with the beveled gear on the differential case.—R. H.

## FAVORS JUMP-SPARK IGNITION

Ghent, N. Y.—Editor Motor Age—In Motor Age, issue of February 25, page 22, was a communication from L. G. Stepninski on "Suggestions for the Manufacturer." I cannot agree with his specifications for an ideal car. What is the matter with jump-spark ignition? The majority of our cars are fitted with it today. The Renault, driven by Strang at Savannah and which made the fast time of 101.7 miles per hour, carried the jump-spark system, as did the Thomas Flyer, winner of the New York-Paris race. This gives the jump-spark record for both speed and endurance. Exact synchronism cannot be maintained with the make-and-break system, owing to uneven wear of igniter points. The jump-spark used in connection with an even-spaced timer and master vibrator always insures exact synchronism, an advantage that must be secured to maintain full power of motor. As to control, I see no objection to side levers. I favor the left-hand steering with control levers at the right hand of the driver, which method gives easy ingress and egress to both sides of a car. The method of placing the control levers on

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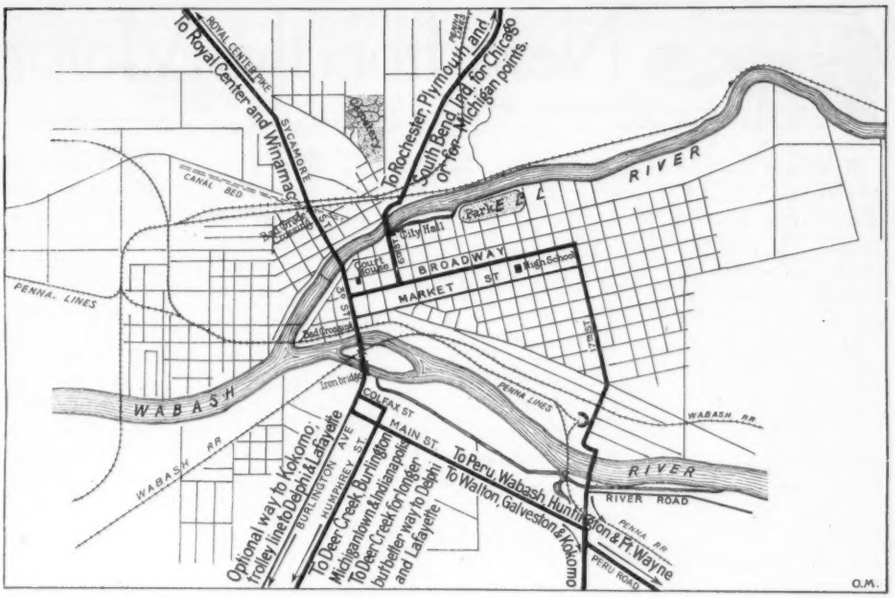
the steering mast is obsolete. One of our recent successful cars adopted this method with the result that a new company is located in its factory. Gearing the cars at a ratio of three to one is low enough. The watchword of the twentieth century is "Rapid transit;" therefore, the true American business man demands speed. Should we not build our cars according to the trend of the times? I think if Mr. Stepzinski would consider which car would be the more economical—a car with a planetary transmission that has to take hills at a snail's pace and race its head off to keep up with a funeral procession, or a car with a three-speed gearbox that by its use always runs its motor at the most economical speed, taking hills on second which the planetary must crawl up on that dreadful low, he would soon realize that the two-speed gear is down and out. A gearbox is no load to carry and by its use, when the occasion demands, the life of the car is increased. Our modern cars are all making good.—H. M. Raab.

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## BRAKING POWER OF ENGINE

Lebanon, Pa.—Editor Motor Age—I differ with Motor Age's version, as given in its answer to my communication in its issue of April 8, relative to the braking power of an engine when the car is descending a hill on high gear. If the braking power is greatest on low gear in descending a hill, why does one shift to low gear when ascending a hill? I think the answer to this will be that the resistance of the car is too great for the engine to overcome on high gear; or, in other words, the load is too heavy, and shifting into a gear where the resistance is less on the engine the car is pulled up the hill. Under such circumstances the thing to do is to speed up the engine, if a gasoline car. The best way to handle a gasoline car on a hill, providing the car has three speeds forward, is to find out how fast the car runs on second, then run up the hill on high until the car drops back to the second speed, shift to second and the car will move along without a jar, and as the speed lessens shift to first or low, which has the least resistance on the engine. There are many things in this world which at first are considered very mysterious but later are proven to be very simple and practical, and here is one of them. The top of the wheel in passing along the road moves more quickly through the air than the bottom. At first, this sounds foolish, but it is an absolute fact, and is due to the movable axis, the top of the wheel having a forward motion plus a forward revolution, the bottom of the wheel having the same forward motion minus the backward revolution. Your theory seems quite plausible, but theory and practice are two different propositions. I have found that in running a car I could hold the car much better in descending a hill if shifted on high gear than on low. An experience in descending a hill on low gear convinces me that your theory will not hold, as the car simply raced and gained such momentum that the only thing I could do was to apply the emergency brake and check the speed. Your gear ratio is correct in theory, but let us look at the question from a practical standpoint. How does an engine with 70 pounds compression turn over the easiest, whether turned over slow or fast? I think Motor Age will agree with me that after an engine has made several turns, it turns much easier than at first, and the faster it is turned over the easier it is done, and it is this principle upon which I base my argument other than practical demonstration. This may seem foolish to most motorists, but that does not prove it impractical.—J. H. Cilley.

Motor Age has experimented with using the engine as a brake descending hills and has found the conditions exactly as stated in reply to your communication last week. On a 10 per cent grade the motor reduced the speed of the car to a certain rate with direct drive; on intermediate speed the braking power was still greater; and, on low was greatest. If the compression in the motor is good, it takes just as much energy to turn the crankshaft against that compression whether turning fast or slow.

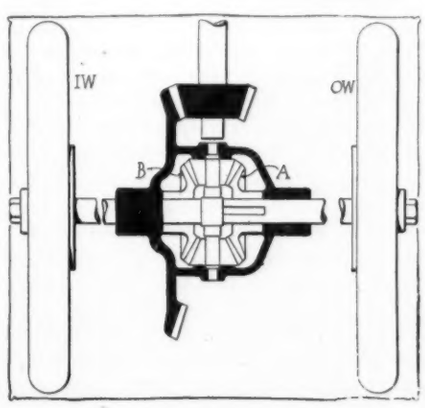


FIG. 2—DIFFERENTIAL STRAIN

## CROSSING THE PLATTE RIVER

Beatrice, Neb.—Editor Motor Age—In Motor Age, issue of April 1, I noticed a suggestion by "R. W. S.," of Denver, for a route from Omaha to Denver for the Glidden tour. The route, as proposed, goes from Omaha to Lincoln by the way of Ashland. I drive from this point to Omaha, going by the way of Lincoln, Greenwood, Yutan, and Valley, crossing the Platte river at Valley, supposing that there is no bridge at Ashland. I would like to know if there is any way for a motor car to cross the Platte river at Ashland.—C. E. Smith.

## CAUSES BACK FIRING

Madison, So. Dak.—Editor Motor Age—In Motor Age, issue of April 8, "H. G." states he has difficulty with his 1908 model 10 Buick. I venture the opinion that the back firing may be caused by a short circuit in the distributer which, at times, causes a cylinder to explode at the wrong time. I would suggest that he take off the distributer cover and clean it thoroughly. If the back firing still continues, look the intake over carefully for a leak. I drove a model 10 Buick last fall and had considerable trouble until I cleaned the distributer and remedied a small and scarcely noticeable leak in the intake pipe. It is a well-known fact that the Buick company discarded the distributer before the 1908 season was over and adopted the simpler timer and a quad coil. I have a Kingston carbureter on my present car and am having some trouble with it, but think it due to some dirt in the gasoline. This I will easily remedy, of course.—Dr. H. H. Frudenfeld.

# News from the Motor Clubs

**Signboard Campaign On**—The Muskegon Automobile Club, of Muskegon, Mich., will begin work soon on its signboard campaign. The plan is to place signs at every crossroads within 100 miles of Muskegon bearing these words: "This Way to Muskegon."

**Berlin Organizes**—The Berlin Automobile Club, of Berlin, Wis., has effected a permanent organization and elected the following officers: President, C. M. Boettge; vice-president, T. S. Rumsey; secretary, Perry Niskern; treasurer, W. N. Crawford; members of the executive committee, Frank H. Russell, H. Safford and Fred Wright. The headquarters will be at the Wilson garage. The club already has a membership of thirty-five.

**Drought Resigns**—The Milwaukee Automobile Club has accepted the resignation of James T. Drought, secretary and treasurer since its organization in 1903, as Mr. Drought could not be induced to remain. Arthur C. Brenckle has been elected secretary and a treasurer will be chosen at the next meeting, it having been decided to separate these offices. Mr. Drought has consented to act as legal counsel. Mr. Brenckle is a charter member of the club. The secretary's office will be at 432 State street.

**Tri-Cities Get Busy**—Signs are in readiness to be placed on all roads leading out of Davenport, Rock Island and Moline and will be put in place soon. This is one of the actions taken as a result of the recent activity in this section of the state since it has come to be generally believed that the Glidden tour will honor the tri-cities with a visit this summer. Small enameled club signs, 3 by 5 inches in size, will be placed in the front end of all the cars belonging to members. Efforts are being made by the three cities to have the Glidden tourists stop at Davenport on their first night out from Chicago.

**Schenectady Elects**—At the recent annual meeting of the Schenectady Automobile Club, of Schenectady, N. Y., the following officers were elected for the ensuing year: C. H. Benedict, president; Gerardus Smith, vice-president; B. A. Burtiss, secretary; J. W. Yelverton, treasurer. The club endorsed George A. Pepper for the appointment of superintendent of highways. President Benedict was authorized to investigate the matter of securing permanent headquarters for use of club members and visiting motorists. A committee consisting of E. F. Peck, Merritt Hammond, B. A. Burtiss and C. H. Benedict, ex-officio, was appointed to attend a hearing of the highway commission in Albany with a view to promoting the interests of Schenectady in connection with the new cross-state highway. It has been stated that promoters of the new state highway have designed a plan to exclude Schenectady by passing north of the city. Schenectady motorists are strongly opposed to this.

**Club Suggested**—A suggestion has been made that the motorists of Port Colborne, Ont., and vicinity, a few miles from Buffalo, should form a club. One of the first things that would be done by the proposed organization would be to erect signboards bearing instructions about the location of good roads and other features on the Niagara frontier.

**Powell Evans Chosen**—At a meeting of the new board of governors of the Automobile Club of Philadelphia last week Powell Evans was elected president of the board; Stedman Bent, vice-president, and S. Boyer Davis, secretary-treasurer. The latter will continue to act as counsel for the club. The work on the new road book of the club has been finished and the committee only awaits the final passage of the new motor laws of Pennsylvania, New Jersey and Maryland before sending the book to the binders. No fewer than sixty-three applications for membership were favorably acted upon.

**Elmira Club Banquet**—The Elmira Automobile Club, of Elmira, N. Y., recently held its first annual banquet at the Hotel Langwell, in that city. Fred H. Rees was the toastmaster. The objects of the Elmira club are to secure better and appropriate legislation, better roads, regulation of the speed limits and proper danger signs, etc., which will benefit both the motorists and the public. The new board of directors is as follows: Clay W. Holmes, president; Fred N. Dounce, vice-president; Fred H. Rees, secretary; D. J. Manley, treasurer; Charles E. Stevens, Floyd M. Schoemaker, Frank E. Robbins, members of the executive committee.

**Wilkes-Barre's Choices**—At the annual meeting of the Wilkes-Barre Automobile Club, of Wilkes-Barre, Pa., last week the following officers were elected to serve during the coming twelvemonth: James H. Hughes, president; Guy W. Moore, vice-president; P. S. Ridsdale, secretary-treasurer; the foregoing and Thomas A. Wright and George V. Lewis constituting the board of governors. The racing committee, which will have charge of the big hill-climb on Giant's Despair, May 31 next, will be made up of George F. Lee, chairman; T. A. Wright, P. A. Meixwell, W. E. Steelman, Dr. E. C. Wagner, Guy W. Moore and George W. Lewis. The club put itself on record as in favor of a new road out of the Wyoming valley to take the place of the present Easton turnpike, which has grades running as high as 22 per cent, with an average of 12 per cent. A preliminary survey of the proposed new road shows an average grade of 6 per cent, with a maximum of 4 per cent.

**Big Club Started**—The Commonwealth Motor and Driving Club, of Watertown, Mass., a suburb of Boston, starts out this season with a membership of nearly 800. These comprise men who own fast horses as well as motor cars. The club has a fine big house and each night the members do a lot of entertaining.

**Election at Jamestown**—At the annual meeting of the Jamestown Automobile Club, of Jamestown, N. Y., recently officers were elected for the ensuing year as follows: President, W. J. Maddox; vice-president, Fletcher Goodwill; secretary, Louis C. Breed; treasurer, B. D. Phillips; trustees, Peter H. Hoyt, S. B. Broadhead, Oscar Strandberg, Dr. W. E. Goucher, Harry W. Fenton, J. H. Wright, F. O. Anderson, C. A. Pickard, D. H. Grandin, Fred P. Hall, W. A. Marsh and W. W. Hunt.

**Denver Club's Growth**—On April 1 the Denver Motor Club at the age of 7 months issued membership card No. 435. The club was organized late in August of last year and on November 1 the membership was 200. At that time active work toward securing new members was begun, and during the 5 months since that date 235 names have been added, making an average of one and one-half new members a day, Sundays included. The show in February interfered with the campaign somewhat as it occupied practically all the available time, but the work is being started with renewed vigor. One of the methods used which has met with success is the issuance of a booster blank on which the members are asked to furnish the name, occupation and address of persons eligible for membership in the Denver Motor Club. The names thus received are canvassed, either personally or by letter, and the result has been most satisfactory. There are a number of strong arguments to be used in securing new members. Chief among these are the standing offer of a reward of $100 for the arrest and conviction of any person stealing a member's car, the sign-boarding of the roads throughout the state, the continuous agitation of the good roads question, the legislation for the protection of motorists which has been accomplished, the social features offered in connection with the club house, and the prestige of belonging to a club which has on its rolls the leading business and professional men of Denver. The club is preparing to raise a fund of $10,000 for

the entertainment of the Glidden tourists. A gymkhana and an illuminated parade will occupy a day and night, a trip to Estes Park 2 days, an excursion to Pike's peak and Colorado Springs 2 days, and other entertainment will be provided later.

**Women Want a Contest**—El Movigante Klaubo, Philadelphia's select women's club, has asked permission of the Fairmount park commissioners to hold an obstacle contest for women on the drives near its clubhouse in the park at some future date. The commissioners have taken the request under consideration.

**Dining Club Started**—A number of members of the Automobile Club of Washington have formed a dining club under the name of the Non-Skid Club. The club has no officers but meets occasionally around the festive board. The organization will give a dinner at the country home of the Automobile Club of Washington during the latter part of the month.

**Southern Clubs Active**—Activity among the clubs is in evidence all up and down the line through the southland. Two Dixie clubs which have recently showed signs of activity are those of Atlanta, Ga., and Montgomery, Ala. The former has just bought a new clubhouse. The latter has reorganized. New officers have been elected as follows: Major R. E. Steiner, president; Henry Hobbie and J. M. Kennedy, vice-presidents; Percy Black, secretary, and A. M. Kennedy, treasurer.

**Membership Campaign On**—A big membership campaign has been inaugurated by the Syracuse Automobile Club, of Syracuse, N. Y., with a view to securing enough members to engage a permanent secretary and club headquarters. There are at present 230 members of the club and about 250 owners of motor cars in the city who are not yet affiliated with the organization. President Hurlbut W. Smith and Secretary Forman Wilkinson have the campaign in hand and expect to put on at least 150 new members as a result. The club has a large amount of work laid out for the summer in the way of placing road signs and agitating the repair of bridges and improvement of highways in the central part of New York state.

**Pittsburg Progressive**—The Automobile Club of Pittsburg is one of the most active motor organizations in Pennsylvania. It recently spent $300 in erecting enameled signs on the through roads radiating from Pittsburg at a distance of 100 miles. In February the club gave a dinner to about 200 township road officers of Allegheny county and D. Ward King, of Maitland, Mo., a national authority on the care of dirt roads, explained his method of construction. The club has made an offer to pay $5 to each supervisor who will build a drag and give it a fair trial. The series of rewards aggregating $300 for the supervisors of Allegheny county will also be announced soon. The new officers of the club are: President, Edward Kneeland; vice-presidents, Edward J. Kent, William N. Murray and J. N. Lockhart; treasurer, William A. Heyl; secretary, Paul C. Wolff. Fifty new members have been added since the annual meeting in February.

**Milwaukee Wants a Meet**—The officials of the Milwaukee Automobile Club are trying to make satisfactory arrangements for a race meet in connection with the Wisconsin state fair at Milwaukee, September 6 to 10. It is probable that there will be a 24-hour race at the state fair park on July 4 or late in the fall. It is found inadvisable to pull off an event of this kind at the time of the state fair,

**Club Members Careful**—Statistics just gathered by the Buffalo Automobile Club show that out of sixty-six arrests for excessive speeding of motor cars in this city last year only seven of the accused were members of the club. The club has a vigilance committee composed of eleven members, who already have begun work at taking and reporting the speed of motor cars on different stretches of street in the city. The police department's motor cycle cops are out on watch also.

**Grand Rapids Gets Busy**—The Grand Rapids Automobile Club, of Grand Rapids, Mich., is planning a season of strenuous activity. The proposed hill-climb is being earnestly considered at present with the prospects that it will be held in the near future. The club has abandoned Reservoir hill as the scene of the proposed climb, as the hill is considered too difficult and sandy. It is now announced that probably the climb will be up West Bridge street hill, a grade of perhaps 25 per cent. This is also an extremely difficult hill, owing to a sharp bend. The roadway, however, is a good one. The road to the new clubhouse at Cascade is being put into good condition and it is expected that it will be in shape so that the clubhouse will be accessible within a few days. Improvements are well under way in the building itself and the club expects to throw open the doors of the building May 1.

BOOSTER BLANK

FILL OUT AND RETURN PROMPTLY TO
Denver Motor Club

*The following are eligible for membership in the Denver Motor Club and have my endorsement:*

| NAME | OCCUPATION | ADDRESS |
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Date_____ Signed_____

Address_____

DENVER'S MEMBERSHIP BOOSTER

**Outing Club Formed**—Motor car owners of Indianapolis, have organized a private club for the purpose of making week-end runs to Indiana resorts and which is known as the Outing Auto Club. Officers of the club are: Charles Sedwick, president; William Hinkle. secretary; E. E. Stafford, treasurer, and Dr. Frank Morrison, pilot.

**Home for Southerners**—The Fulton County Automobile Club, made up chiefly of residents of Atlanta, Ga., has just leased a beautiful estate 7½ miles from Atlanta as its clubhouse and will take possession March 15. The property was formerly known as "Joyeuse" and the house was built by a wealthy Atlantan. It is located on Peachtree road.

**Washington Gets Busy**—Officials of the Automobile Club of Washington are busily engaged in the work of preparing for the club's endurance run to Frederick, Hagerstown, Waynesboro, Buena Vista Springs, Westminster on May 15. Three cars carrying the officers of the club will go over the route within the next 10 days for the purpose of placing signs showing the bad portions of the route.

**New Badger Club**—The Wisconsin Valley Automobile Club has been formally organized and incorporated at Wausau, Wis. Dr. A. W. Trevitt, president; John Manser, vice-president; G. N. Heinemann, secretary, and George W. Sexsmith, treasurer. The directors, in addition to the above, are: M. C. Ewing, C. J. Winton, J. S. Alexander and D. J. Murray. The first work the club will undertake is legislation, and a delegation will be sent to Madison to reinforce the Milwaukee club and the Wisconsin State A. A. in fighting pernicious legislation. Signboards will be erected throughout the Wisconsin river valley in the vicinity of Wausau. A number of tours are being planned, one having Milwaukee as its objective point.

**Staples Reëlected**—At the annual meeting of the Automobile Club of Bridgeport at Bridgeport, Conn., Frank T. Staples was unanimously reëlected president. The club now numbers nearly 250 resident and nonresident members. Other officers were elected as follows: Ralph M. Sperry, vice-president; F. W. Bolande, secretary; L. B. Powe, treasurer. The new governors elected are: H. H. De Loss, M. V. Doud, Dr. H. S. Miles, E. W. Fairchild, A. H. Canfield and B. H. Edwards. Treasurer Powe's report stated that the expenses of the hill-climb last year were little over $500, which was practically met by the receipts. Amendments to the constitution providing that the limit of active membership be raised from 200 to 400, and adding an assistant secretary to the list of officers, were passed.

# Motor Car Development

## McINTYRE MOTOR BUGGY

WITHIN the last year one of the most notable changes in the motor buggy field has been the departure from the two-cylinder type that had become the accepted style by the majority of the makers, to the four-cylinder type; and to this might be added the reduction in the wheel diameters to 36 and in some cases 34 inches with the result that the high-powered motor buggy in some cases became very much a regular car proposition other than the solid rubber tires on the wheels. One of the exponents of the high-powered motor buggy type is the W. H. McIntyre Co., Auburn, Ind., which is marketing a four-passenger type of vehicle with a 27.2-horsepower four-cylinder air-cooled motor which drives through a two-speed planetary gearset and thence by propellershaft to the live rear axle. This car uses 34-inch wheels shod with 1½-inch solid rubber tires and has a wheelbase measuring 111 inches, which together with the horsepower of the motor brings the vehicle into the medium car field. The motor is a conventional air-cooled one, the cylinders having integral flanges on the walls with vertical flanges on the heads and the intake exhaust valves located in the heads and operated by rocker arms, the camshaft location being in the crankcase on the left side. The motor cooling is further facilitated by a belt-driven fan in advance of the front cylinder as well as by fan spokes in the flywheel. A Breeze carbureter is fitted; lubrication is by a mechanical oiler and ignition is by a set of dry cells with dash coil. In the running gear are included an angle frame construction, three-quarter elliptic springs in front, elliptic rear springs, Timken axles, artillery road wheels and expanding rear wheel brakes. The car control is standard with throttle and spark on the steering column and pedals and lever for the other parts such as brakes and speed changes. The body is a rakish design with long hood, hollow dash, well-inclined steering column and regulation fenders.

McINTYRE FOUR-CYLINDER MOTOR BUGGY

## BIPOLAR BATTERY

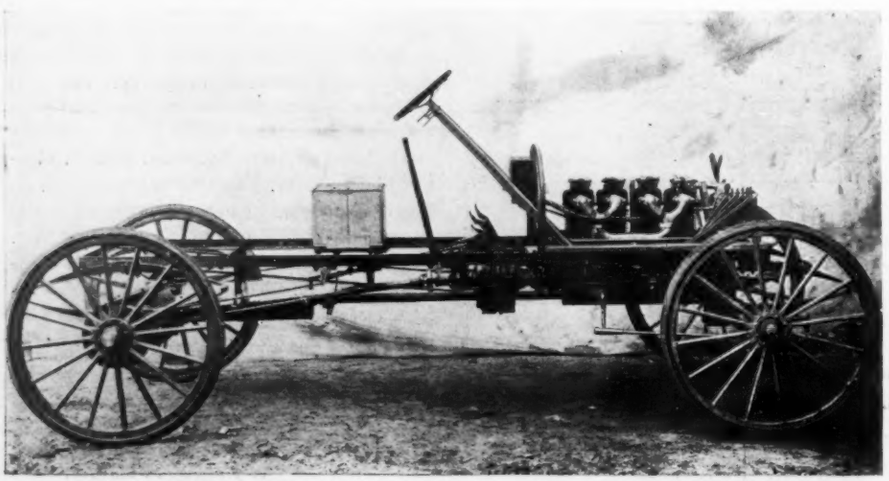
A bipolar battery has been brought out after much experimentation by J. L. and M. O. Smith, which battery is being used in the Cuyahoga electric pleasure vehicle manufactured by the Cuyahoga Motor Car Co., Cleveland, O. The battery is of 120-volt 140-ampere hour capacity and is composed of ten units, each of 12-volt capacity. Each of the ten units is composed of ten plates —five negative and five positive—which is one plate fewer than used in the ordinary batteries. The solid lead plate is interposed between two plate electrodes of different polarities and is in metallic connection with the inner faces of both the positive and negative plates. The makers claim that the same results are obtained from the battery where the electrolyte is high or low because the current does not run through the exposed parts of the plates, but follows horizontally the lines of least resistance. It is further claimed that the battery can be fully charged in 3 hours. The company has had a sixty-unit battery in a car which has been demonstrating in the vicinity of Cleveland.

## SHOFERALL OVERALLS

The Charles Alshuler Mfg. Co., Racine, Wis., is marketing what it terms the Shoferall overalls, which in brief is a combination or union overall suits for chauffeurs, with which a cap is combined. The suit is made of cottonade and is constructed in one piece. The cap can be detached by unbuttoning at the neck. The suit is intended to be used by chauffeurs and drivers when making unexpected roadside or other repairs, but can be used for regular garage and repair work.

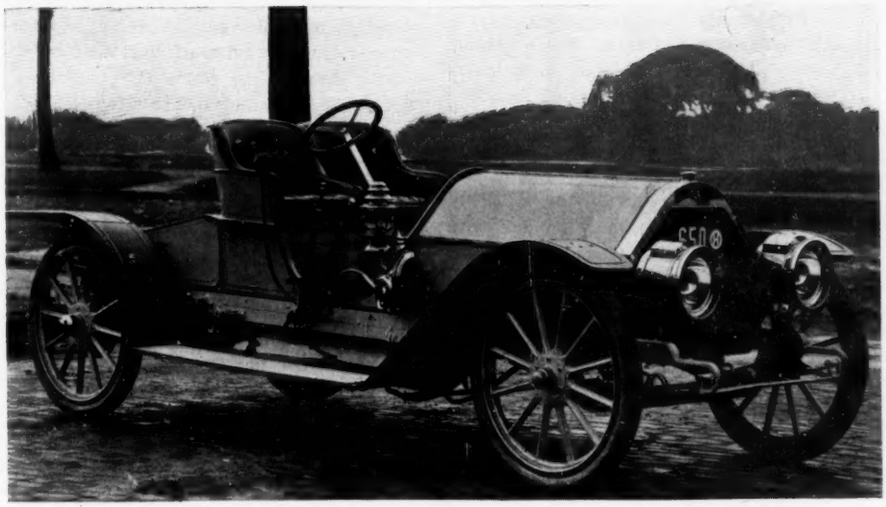
## SHAFT-DRIVE MOTOR BUGGY

The Speed Changing Pulley Co., Anderson, Ind., manufactures a motor buggy of the two-cylinder type which employs shaft-drive and uses a planetary gearset in conjunction therewith. The air-cooled motor with its opposed cylinders measuring 4¼-inch bore and 4-inch stroke and rated at 14.5-horsepower, is mounted crosswise in front so that the flywheel at the forward end is well in rear of the front axle. On the cylinder heads are lugs for supporting direct on the side pieces of the frame thereby acquiring the maximum of frame simplicity in that but one crosspiece in addition to the end members is required, it being a dropped one supporting the housing for the planetary gearset. Mounted



CHASSIS OF McINTYRE MOTOR BUGGY WITH FOUR-CYLINDER MOTOR

# Three Types of Motor Cars



VEHICLE FITTED WITH NEW BIPOLAR BATTERY

on the crankcase is a magneto for regular running and a set of dry cells is fitted for starting purposes. Lubrication is by a self-contained system in the crankcase. A novelty in conjunction with the transmission is the supporting housing which extends rearward from the crankcase which protects the transmission bands from dirt thrown up by the road wheels. The driveshaft is enclosed in a tubing, which tubing is reinforced by angular brace rods from the axle ends and converging so as to connect with the forward end of the tube. Elliptic springs are used in front and rear. Internal brakes are fitted to the rear wheels, the wheelbase measures 90 inches, the front wheels are 36 inches in diameter, the rear wheels are 38 inches and both carry 1¾-inch solid rubber tires.

## WESTINGHOUSE RECTIFIER

The Westinghouse Mercury rectifier and battery charging outfits, used for converting an alternating electric current into a direct current for convenience in charging storage and ignition batteries, are claimed to have a high efficiency at both full and light loads. In using the type A mercury rectifier, which can be adjusted for charging batteries of any capacity, it is only necessary to set the regulating dial pointers according to the table on the instruction card furnished. The rectifier is cut into the battery, or object through which the direct current will pass, the primary current switch is closed and charging begins. Should at any time the current be interrupted, the rectifier automatically starts it. This allows the individual owner to run his electric vehicle into his garage at night, connect it to the rectifier and retire, knowing that in the morning his battery will be fully charged. The company manufactures a type E mercury rectifier used for charging ignition batteries for cars. Its principle of operation is the same as in the larger one, but it is smaller in size and capacity and is mounted on a small panel which can be bolted to the garage wall.

## MOTOR CAR LITERATURE

The National Tube Co. in its catalog of Shelby steel tubes, illustrates the steel billets as delivered to the seamless tubing mill and contains a series of illustrations showing exactly how these seamless steel tubes are manufactured. A running story of the manufacturing processes is included.

The Dorris Motor Car Co.'s catalog illustrates and describes the car in a conventional manner.

Points of interest in conjunction with the present Stevens-Duryea catalog is the embossed floral border on the cover page, the colored border used on all of the other pages, and the full page illustrations of the car. Two pages are devoted to Morris' rules for motorists.

The cover page of the Model Automobile Co.'s catalog contains an embossed gilt border within which is pasted a color plate showing the Great Western car in the foreground of a rural scene.

"Lubricating the Motor" is a booklet circulated by the Joseph Dixon Crucible Co. descriptive of the various lubricants of the company and covering the different uses of them.

An interesting booklet on Stromberg carbureters, manufactured by the Stromberg Motor Devices Co. shows a two-page assembly view of the carbureter, depicting every part which enters into its make-up.

"Evidence," issued by the Columbia Lubricant Co., pictures a great many of the leading motor car drivers and contains a series of letters from users of its lubricants.

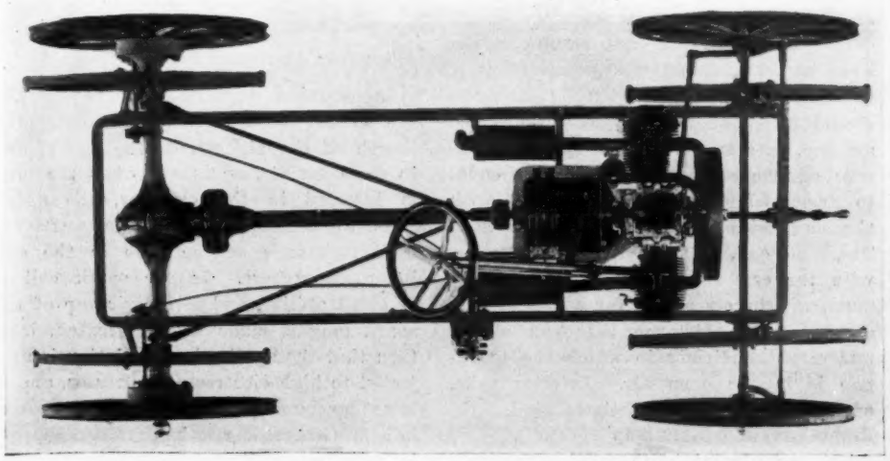
The Woods Motor Vehicle Co. has an attractive two-color booklet devoted to its electric vehicles, in which is given a short story of the long-distance run from Chicago to Lincoln, Neb., in one of these cars. Many illustrations of this 1,500-mile trip are given.

The 1909 Auburn catalog illustrates and describes the company's two and four-cylinder models and gives complete specifications.

The Packard Motor Car Co. has issued a catalog devoted exclusively to its truck vehicles. An attractive feature is the broad border effect across the top of each page in which the different truck models are illustrated.

The 1908 Kissel catalog, printed in two colors, uses full page illustrations of all its car models in the first part, and concisely describes the car in the second part.

The Jackson catalog is essentially a descriptive booklet.



MOTOR BUGGY CHASSIS SPEED CHANGING PULLEY CO.

# ELECTRICAL DEVICES USED IN MOTOR CARS

By Thomas J. Fay

Part II

WHEN electrical energy is dissipated, as it is if the part of the current has the property called resistance, heat is the phenomenon which takes the place of the dissipated electrical energy. On the other hand, all heat manifestations are of a radiant character up to the time when the heat rays intercept some media, substance, and it will be understood that radiant heat does not produce what is termed sensible heat; that is to say, radiant heat would not cause the thermometer to register. No amount of radiant heat would cause water to boil, for instance, but if water intercepts radiant heat the same will be altered in its characteristics, as a result of the contact, and the water would be heated in consequence.

When the electrical energy is dissipated in the spark gap all the energy may be transformed—reduced to heat—if the resistance of the gap is high enough, and if the gap is permeated with any substance, heat manifestations will follow sufficiently to heat the molecular structure to incandescence, and a spark is said to result. In the process, as the structure is heated, some of the radiant energy is so altered that the flame is really due to light vibrations to some extent, rather than to heat manifestations exclusively. At all events it is contended that there would be no spark at the gap in the absence of some substance—medium—and what was stated in relation to the electric arc will serve to illustrate the point to be made here.

**Energy of the Spark**

If the spark plug is exposed in the open air the spark will be with greater energy, and the jumping distance can be considerably greater than will follow if the spark plug were placed in the cylinder, so that the spark will have to jump the gap under the conditions in which the mixture, under pressure, will permeate the gap of the spark plug. The reason for this lies in the relatively high resistance of the hydrocarbon gas under pressure, and the higher the pressure the greater will be the resistance. Incidentally, it is hydrogen and carbon that form the media —for the most part—that results in the light and heat manifestation, technically called a spark. A fairly good spark coil should be capable of breaking down the air gap, in atmospheric air, under a pressure of one atmosphere, which is equal to about 14.7 pounds per square inch, with the electrodes separated about ½ inch. The same coil, in the cylinder of a motor with the compression at its usual maximum, will barely suffice for a gap of one-eighth of the distance that can obtain under the conditions in which the spark-gap is in the open air. Inferior coils, of less ability, are sometimes used.

**Right Length of Air Gap**

The right length of the air gap between the nodes or tips of the spark-plug should be such that the current in amperes in the primary circuit, H, Fig. 3, will be the same as that which would follow were the maximum results obtained with the spark plug in the open air. In other words, the electro-motive force in volts is fixed by the ability of the coil, and the current in amperes is influenced by the resistance —virtual—of the gap, subject to a slight correction for the resistance of the leads; so that the length of the gap should be so adjusted as to assure the same current that can be obtained when the spark gap is the maximum—in the open air—that will break down under the coil potential, when it is a maximum. The maximum secondary potential, while it is fixed by the design, will not be realized unless the air gap is long enough to excite the coil to its maximum.

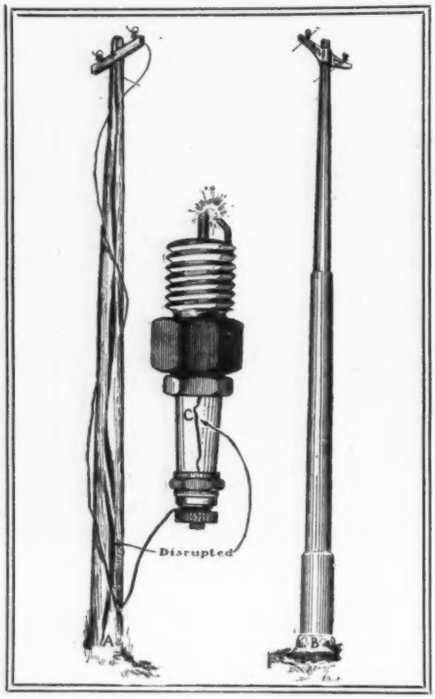



FIG. 4

**Mistaking Ability of Coil**

In practice it is common to mistake the ability of a coil by adjusting the length of the air gap of the spark plug in the open air, and then, when the plug is inserted in the cylinder, the spark fails to develop, due to the relatively high resistance of the path in the cylinder atmosphere. If the spark coil is of great ability, and if the air gap of the spark plug is made long, to match, it is then that the spark plug insulation is subjected to high electrostatic stresses, and it is not uncommon to observe that the porcelain is disrupted, just as a telegraph pole is split when lightning takes the pole as a path to ground. Were the pole of metal—steel—instead of wood, the lightning would run to ground without damaging the pole, for the reason that the resistance of the pole would not be sufficient to dissipate enough of the electrical energy, in the form of heat and electrostatic stresses, to cause the pole to disrupt. Fig 4, A and B, are telegraph poles, one of which, A, is of cedar, and the other, B, is of tubular steel. The cedar pole shows a split the whole length, just such a split as a lightning bolt would make, but the steel pole is unaffected, just as it would be no matter how many times the lightning might choose it as a path to ground. In the same way, if the nodes of the spark plug are not separated at all, the electrical potential will traverse the circuit without any sign of a spark, whereas, if the nodes are separated sufficiently the air gap will be of such high resistance that—provided a very efficient spark coil is used—the porcelain resistance tube will be cracked, in the manner as shown at C.

**Reason the Same**

The reason is the same in both cases and, although the illustration is a little far-fetched, yet even so, to the motorist who has not given his time to the study of such matters, it may prove sufficiently refreshing to warrant the license. The moral is, use a good spark coil in order to experience reliability, but do not separate the nodes in the spark plug so that the gap will be great enough to endanger the porcelain insulating tube. What is the right distance? Obviously, that distance which will induce a spark of sufficient competence, in view of the work to be done, and no more, say, 3/64 inch.

**Difficulties with High Potentials**

The resume thus far has led up to the point which would seem to adequately indicate that lack of insulation is the bane of the average electrical system. Since the circuit is grounded on one leg—one side leads to ground—this same ground is as a license for further trouble of the same character, for the reason that the high-potential secondary is afforded a large surface over which it will spread out in its search for a short return path. The insulation of any circuit is equal to the insulation resistance per foot, divided by the number of feet of surface. In other words, if the insulation resistance of a cable is 1,000,000 ohms per mile, the resistance will fall to 1 ohm in 1,000,000 miles. This might sound like safety, but it is unfortunate for the average system since the insulation is not 1,000,000 ohms, and the potential is high, even as high as 40,000 volts in some cases. To show that trouble is on tap it is only necessary to call attention to the magnitudes, assuming a probable case for the purpose.

In any divided circuit the leakage to the ground may be determined as follows:

$$I = E \mid C,$$

And

$$R = \frac{1}{\frac{1}{r'} + \frac{1}{r''}}$$

When:
I = intensity of current in amperes;
E = electromotive force in volts;
r′ = resistance in ohms of the short circuit to ground;
r″ = resistance in ohms of the normal circuit of the coil;
R = resistance in ohms of the two circuits combined.

In an example of this let
I = 1 ampere with the insulation perfect;
I = X with the grounded circuit;
E = 30,000 volts when the current is 1 ampere;
E = Y when the circuit is grounded;
Then

$$R = \frac{1}{\frac{1}{30{,}000} + \frac{1}{30{,}000}} = 15{,}000$$

If E remains at 30,000, when the ground is influencing the situation, which depends upon the ability of the coil—

$X = 30{,}000 \mid 15{,}000 = 2$ amperes.

### Loss in Coil Proportional

Since the loss in the coil will be proportional to $I^2 r'''$, in which r‴ represents the resistance of the secondary circuit of the coil, it will be useless to discuss the matter further, because the ground will prove fatal to the project, especially as half the potential difference at the spark gap can scarcely be regarded as enough for the purpose, if the initial voltage is looked upon as right.

### Ground Robs Current

The ground will rob the normal circuit of its current or the impressed electromotive force will diminish, due to the lack of ability of the coil to deliver the excess current, which must follow, if the resistance of the external circuit diminishes, as has been shown that it does, if a ground comes on the second leg of the circuit, assuming that the first leg is grounded to economize in use of material. It is even possible to predict trouble under the conditions as above named, for in all probability the coil will fail to perform satisfactorily after the current is doubled, as it will be if the external circuit is of half the resistance, assuming that the voltage remains as before. The normal resistance, 30,000 ohms, as given, is not so high as to be impossible, although it is hoped that coils will not be used in which the secondary circuit is composed of 1 pound of No. 40 B. & S. gauge wire, the resistance of which is 35,087 ohms at 20 degrees C. It is better practice to use a larger sized wire, sav, No. 38 B. & S. gauge, in the secondary, and from ½ to ¾ of a pound makes a very good secondary. As a rule, the primary is with about the same, the weight of wire, one-half the number of gauges in size, say, No. 18 in this case.

### Functions of High-Tension Distributer

The high-tension form of ignition distributer is used in conjunction with either a magneto or battery as the source of electrical energy, and in some cases the distributer is incorporated in the magneto, although in connection with the auxiliary battery it is ofttimes employed separately, in which case one spark coil unit will serve for a plurality of cylinders. No matter how the distributer is incorporated into the system it always is the same in principle.

Fig. 5 is a cross-sectional view of a high-tension distributer, cut through the vertical center in order to point out the various functions and to state the limitations. The primary current enters from the battery or magneto, as the case may be, through the cable attached to the terminal S, and is transmitted through the metal tube Q to the ball O, which ball is pressed against the contact cams N, on which there must be as many contacts as there are cylinders on the motor. The primary current is prevented from passing to the housing V by the insulating bushing R, so that the primary circuit is closed at fixed intervals of time, which are regulated by the contact of the ball O, with the faces of the cams N, which are integral with the rotating shaft M.

### Speed of Shaft Rotation

The shaft M is connected with the camshaft of the motor and rotates at the same speed. It is held centrally by the bearing T, which is prevented from falling by the nut U. A second bearing is usually placed at a point near the gear which transmits the motion to the shaft M from the camshaft of the motor. The primary current passes down the shaft M to ground, thence back to the battery or magneto, as the case may be. Since the primary winding of the spark coil is interrelated with the secondary winding of the same coil, it follows that a secondary electro-motive force of high voltage will be set up in the secondary coil every time the primary circuit is opened and closed by the contact of the cam N; and this secondary electro-motive force enters the distributer through the cable A, passing hence through the tube F, and the contact piston G to the ball H, which ball is held in intimate contact with the socket of the finger I by means of the spring shown back of the piston G.

This high-voltage electro-motive force is prevented from passing to ground by the insulating cap K and the mica plates X. The holding screw J serves to keep the finger casting I in place on the insulating cap K without causing any electrical leakage since the cavity Y is deep and filled with insulating compound. Since there is no outlet for the high potential of the secondary circuit excepting across the spark gap Z, and since this is the shortest—ohmic—distance to the return path of the secondary circuit, it follows that the high-potential electro-motive force builds up until it jumps the gap, simultaneously with jumping the spark gap in the spark plug in the cylinder of the motor to which the cable C is connected.

As the finger I rotates around its axis, due to the rotation of the shaft M, the finger passes under the contacts in succession, and since each of the contacts, as at Z is connected to a cable leading to a spark plug in the respective cylinders

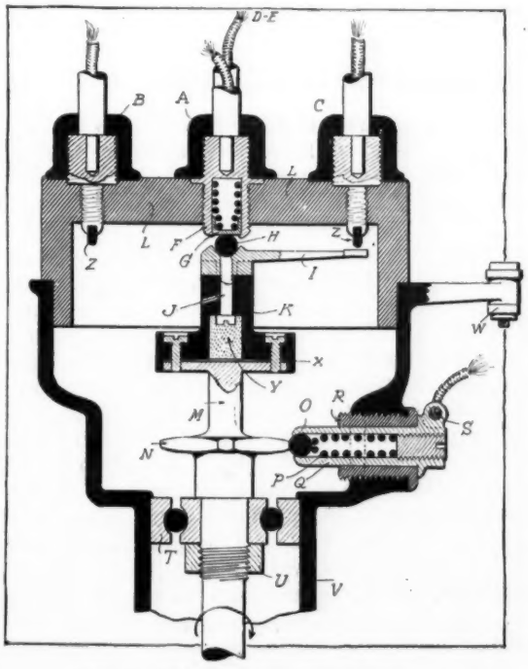



FIG. 5—HIGH-TENSION DISTRIBUTER

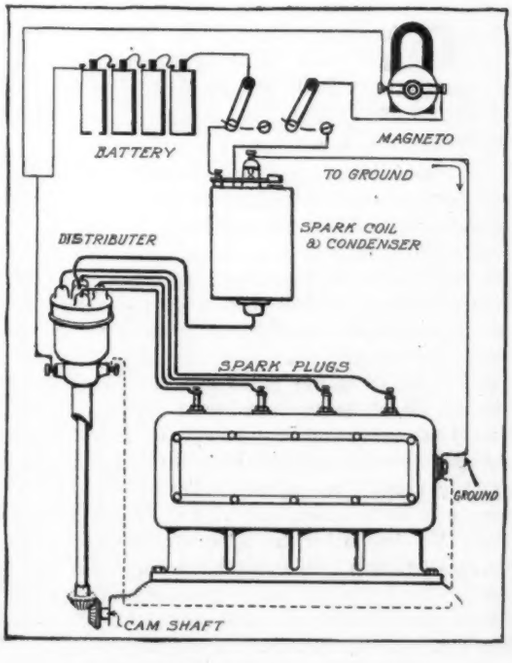



FIG. 6—DISTRIBUTER IN DUAL SYSTEM

of the motor, the spark is timed by the rotation. In a four-cylinder motor, for illustration, the spark would be timed in the order of firing of the respective cylinders in a manner depending upon how the cables B, C, D and E are connected to the respective spark plugs in the cylinders. In Fig. 5 the cable D is back of the central cable A, and the cable E would really be 180 degrees around the circle, which would bring it in the section of the distributer not shown, and in front of the central terminal A.

**Shielding High Potential**

As a further means of shielding the high potential, the cables as they enter at A and leave at B, C, D and E are protected by the insulating caps which screw down tight against the insulating top of a cup-like shape L-L. To further shield the high potential in the secondary circuit, the plate L-L is flanged for a considerable distance to the point where it telescopes with the aluminum housing V. At one point in the diameter the arm W is extended out to accommodate the advance and retard mechanism by means of which the distributer is rotated to the right, or to the left, relative to the shaft M, thus performing the functions designated as advancing or retarding the spark in the process of timing.

In this system, as it is here illustrated, it will be clear to the reader that the high-tension secondary current must negotiate a double air gap, one of which is located in the distributer. It is because of this distributer air gap that the insulation must be so very carefully provided. Moreover, the distances from metal to metal must be well regulated, and considerably greater than the space between the nodes forming the spark gap Z, Z. This second air gap has its advantages in two ways—by the elimination of rubbing contacts and—since the electro-motive force at the spark plugs in the cylinders will be higher—due to the necessity for the voltage to build up so that it will jump the double gap.

**Only One Coil Necessary**

In this system, no matter what may be the source of electrical potential, only one spark coil is necessary, since the distribution is such that the same spark coil is used for the successive cylinders in the manner as explained, through the successive visits of the finger 5, to the respective high-tension cable terminals, B, C, D and E, in a four-cylinder motor, and as before stated, to any number of cylinders, provided only that the terminals be arranged around the disk or plate L-L, in such a manner as to enable the finger to perform its function, and with the proviso that the insulation be adequate for the purpose, taking into account the high electro-motive force. In order to more clearly fix the conditions in the mind of the reader Fig. 6 is offered, showing a theoretical arrangement of the timer, spark coil, battery—which source could be a magneto, instead—and spark plugs in the cylinders of a motor.

**Can Cut Out Vibrator**

One leg of the battery and the magneto connects to the distributer, as shown, while the remaining leg of the battery and magneto connects to the spark-coil though a double-pole switch, with connections from the switch to the spark coil so arranged that the vibrator can be cut out when the magneto is serving for the source of electrical supply. From the spark coil the secondary circuit leads out at the bottom and to the central terminal of the distributer. From the distributer the four high-tension cables lead to the four spark plugs in the manner as shown. The ground connections, through which the respective circuits are completed, are indicated by dotted lines, although it will be understood that the metal framing of the motor is utilized for the return circuit. It is well appreciated by those familiar with electrical work that when a metal framing or the earth is used to complete a circuit, this part of the circuit is designated as a ground.

**Optional with Designer**

In relation to the spark coil, it was said that the vibrator could be cut out during the time when the magneto is used as the source of electrical supply; this could also be the practice with the battery, and, in fine, it is optional with the designer to use the vibrator or not. It all depends upon the details of design and the question of economy in the use of electrical energy, for the vibrator induces a certain economy when a direct current, as from a battery, is used. With an alternating current, as from a magneto, the vibrator has the effect of reshaping the form of the wave of electro-motive force, without any assurance that the new shape will afford an advantage.

## On Use of Tire Chains

Forbidding the use of chains as safety devices on car tires will interfere seriously with the use of motor cars on the highway. In 1821 the select committee of the house of parliament in England thought the construction and use of railways would ruin adjoining property, deprive many people of livelihood, and be an overwhelming danger to cattle. The motor car has developed faster than the art of road construction. It must be borne in mind that the roads in every part of the world are constructed to carry the traffic that develops. Traffic is not outlawed or impeded to suit the highways.

"However, what is the possible injury due to the use of chains? Only a fraction of the cars in operation ever use chains. Those on which chains are used have them in the tool box nine-tenths of the time—probably only 1 day in a month are chains used for a short time. Is it possible that this small use can really be the cause of material damage to the roads? During the very small time relatively that chains are used, what happens? On the straight stretches, when running free the wheels are in perfect rolling contact with the road, and the chains are loose on the tire treads, and imbed themselves partially in the tread of the tire and partially in the road. If the road is soft, the chains will compact a small area of it. If the total area of the road could be similarly treated, it would be greatly improved. Every horse that passes, every moment he is on the road, is digging into and disintegrating the road. This wear of the corks on the horses' shoes is considerable and particularly is this so when roads are soft.

"What is the crux of the situation? In a mile run of a car with chains on, there is a possibility of the road being damaged for 100 feet, but little probability. This means possibly 2 per cent of the time, when chains are used. But chains are used at the most during 1 of 30 days, that is 4 per cent of the time. However, all machines do not use chains by any means. At most the above means that 2 per cent of 4 per cent, or less than that 2 per cent or 4 per cent, or less than 1-10 of 1 per cent of the time in operation of cars on the highways, involves any possibility of damage.

"Is it not possible that the damage accredited to chains on cars has really been caused by different agencies? We have had in the past laws respecting the width of metal horse-drawn vehicle tires. Have these laws been enforced? Is it not a fact that the highways have been improved to meet the requirements of horse-drawn traffic, which formerly rutted all roads, so that now the tire laws for horse-drawn traffic are in this respect immaterial? The infinitesimal use of chains on car tires as compared with the total mileage of cars on your highways would seem, therefore, to cause no logical basis for the restriction which may be contemplated. Life and limb is saved out of all proportion to any possible or fancied injury to roads; and still it is clear that other agencies may be the cause of the alleged road damage. Moreover, the admirable work of the highway commission is rapidly putting the state highways into a condition wherein the inevitable use of cars will, as they must be, accommodated. The United States government has compelled the use of safety devices in railroad operation. The present safety devices for car tires are the result of development of years of study how to provide a proper factor of safety in motor car operation under certain specific conditions. Should this work be nullified? Would it not be more logical to require by law that tried and proved safety devices must be used for the protection of the public at large?"

EDITOR'S NOTE—Summary of address by Coker Clarkson, A. L. A. M., on use of tire chains, at meeting in Albany, N. Y.

# The Motor Car Repair Shop

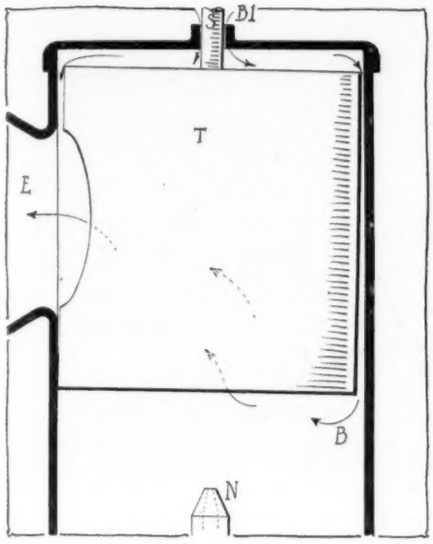



FIG. 1—N, NOZZLE; E, EXIT; T, THROTTLE

## CAUSES OF CARBURETER TROUBLE

ONE of the chief causes of carbureter trouble is an effort on the part of the chauffeur or driver to adjust that device, when the source of trouble lies elsewhere; again, he works on it when he does not know the air adjustment from that of the needle-valve, or whether the motor is getting too much air or not enough; in other words, he is ignorant of its mechanical construction and physical functions.

There is a set of troubles which is well known to all experienced drivers and repairmen—a sort of standard group of troubles, directly and indirectly connected with the carbureter, with which the best of cars driven by intelligent men may at some time be afflicted. Some of these Motor Age will enumerate with respect to cause and effect. First, it should be remembered there are only three kinds of carbureter troubles which interfere with the proper running of the motor—a mixture that is too rich, a mixture that is too poor, and no mixture at all. A rich mixture is one in which the proportion of gasoline abnormally exceeds the amount of air, and may be due to faulty adjustment of the float or air valve, clogged inlet pipe, dust on the inlet pipe screen, leaky float valve, or to a so-called water-logged float, as in cases of soggy cork, or punctured metallic float. A mixture is poor when it contains too much air and not enough gasoline, a condition often due to faulty adjustment of the float or air valve, a leak in the inlet pipe, the supply cock partly shut off, the spray nozzle, float valve, or feed pipe partly clogged, or water in the gasoline. There is no mixture at all when the spray nozzle, float valve, or feed pipe is clogged; the gasoline tank is empty, or the supply cock shut off. These are the major causes.

## OVER-RICH MIXTURE TROUBLE

An over-rich mixture will cause a motor to overheat and thereby give rise to a number of other troubles, such as pre-ignition, carbonization of the piston and cylinder heads, steaming radiator, and loss of power. A poor mixture will make the motor miss when running idle at slow speed, and at high speed it will not only miss, but it will cough and pop in the carbureter.

Many difficulties will often occur owing to a lack of pressure in the supply tank. In a pressure-feed system, for instance, there will be a lack of pressure in the tank if the strainers in the air-line become choked with soot; if there is a leak in the line due to a hole, loose joint, defective gasket, or an obstruction on the valve seat; or, as in some cases where the air pressure is taken from the exhaust, when the cutout is left open, or if the exhaust is particularly free, there is not enough pressure available to overcome the tension of the valve spring. In gravity-feed systems trouble has arisen in climbing hills whose incline brought the carbureter above the level in the supply tank; and in cases where the vent in the filler cap has become stopped, much distress has been experienced.

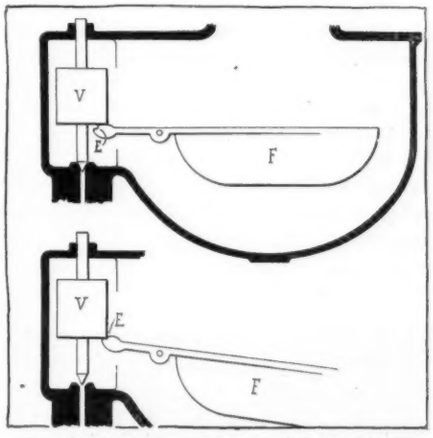



FIG. 3—E IS WORN SPOT ON FLOAT LEVER

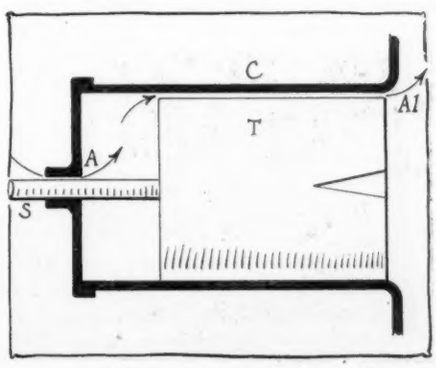



FIG. 4—T, THROTTLE; C, THROTTLE CASING

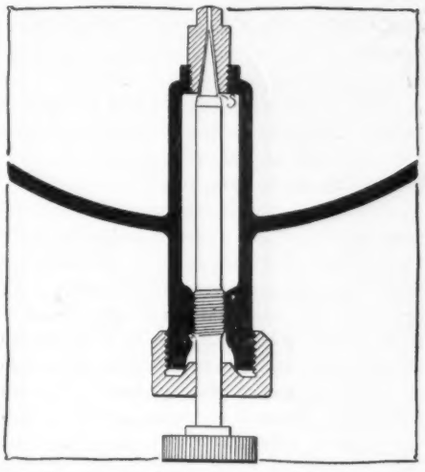


FIG. 2—S, NEEDLE VALVE SHOULDER

Flooding is a troublesome feature of some carbureters, and may be due to a number of causes, such as a shoulder on the valve seat illustrated at S, Fig. 2, or where foreign matter on the valve seat, water-logged or ill-adjusted floats, and slight derangements of the levers communicating between the float and valve.

Throttles and their operating mechanisms are also the cause of much trouble; piston valves become worn and admit too much air; as at B, Fig. 1 where throttle T is worn allowing air to enter at B1 and B, or at A and A1 in Fig. 4. Control levers also become worn, loose, or disconnected; butterfly-valves sometimes loosen up, making control of the mixture impossible; automatic controlling devices are, perhaps, more likely than any other part of the carbureter to come out of adjustment, and the universal ignorance of their construction, due to a lack of respect for their advantages, makes them a superfluity.

Another trouble, generally encountered by tourists, is caused by the difference in the specific gravity of gasoline, as sold in various parts of the country. A carbureter that is adjusted for gasoline of 76 degrees will not act well with 68-degree gasoline without the necessary adjustments, and when the fuel falls several degrees below 68 there will be a perceptible loss of power, regardless of what adjustments are made. Gasoline sold in small towns is often very poor, having become stale from standing a long time, or adulterated with water; hence the necessity of carefully straining the fuel through a chamois skin.

Fig 3 shows a common carbureter where the float lever is worn at E and locks, holding needle valve E off its seat.

# The Realm of the Commercial Car

## CLEANING BY VACUUM PROCESS

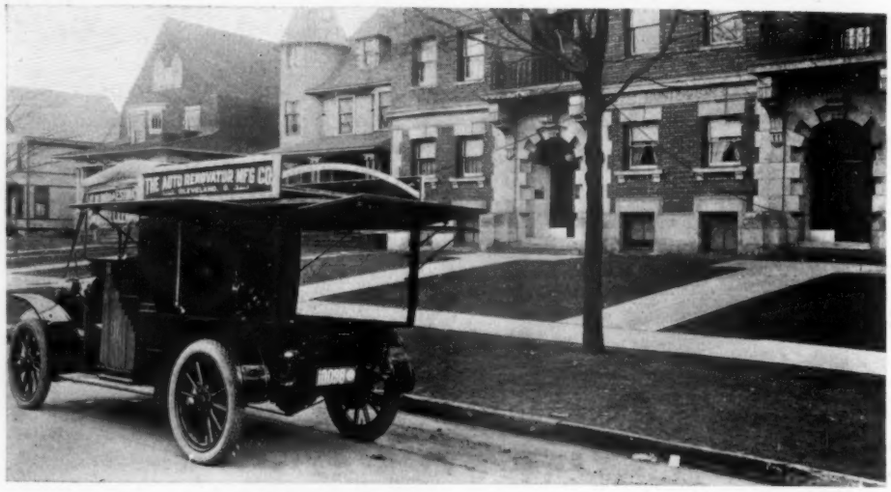
THE accompanying illustrations show the adaptation of a White steamer to a novel commercial purpose. The car is used by the Auto Renovator Co. of Cleveland for the cleaning of residences and business buildings by the vacuum process. The chassis is that of a standard White touring car on which is built a special body containing a dynamo and the several electrical regulating devices. The car carrying the necessary attendants and apparatus is driven from its garage to the building to be cleaned. The dynamo is then belted to the driving shaft and generates current which is conducted by means of wires into the room to be cleaned. Here the current operates an electric motor which drives the vacuum apparatus. This method has been found to be more convenient and economical than the old system of having the vacuum apparatus carried in a vehicle with cumbersome rubber piping running into the room to be cleaned. One illustration represents the car in front of a building and the other shows the arrangement of the dynamo and electric regulating devices. As a means of attracting business, the car is fitted with a set of Gabriel horns on which an operator plays popular melodies as the car is driven through the streets of the city. The car has already become a familiar sight in Cleveland and the owners report that it is booked several weeks ahead.

## MOTOR BUSES IN PITTSBURG

Motor buses in competition with trolley cars will be one of the sights in Pittsburg from now on. Four Rapid cars will transport passengers from the foot of the plain on the south side to the heart of the city at Fifth and Liberty streets. These machines have a seating capacity of twenty-two people and are lighted with electricity. A 4-minute service will be maintained during the busiest part of the day, while an 8-minute schedule is believed will suffice for the rest of the time. The distance to be covered is about a mile.

## NEW TYPE OF ENGINE

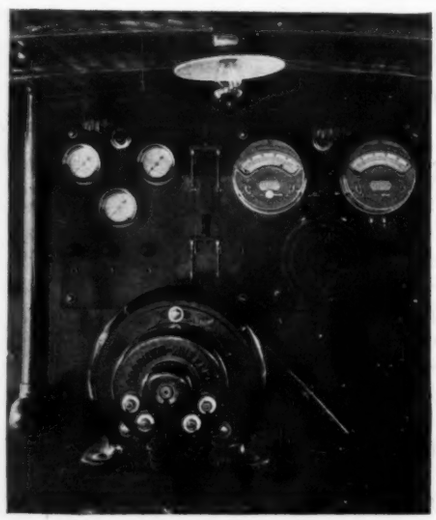
James B. Worthington and Arthur Fishbeck, of Manitowoc, Wis., have completed a model of a new type of gas-gasoline engine, which they believe will be especially adaptable in motor trucks and cars. Patents have been applied for. The builders have worked for 2 years on the invention. Instead of using counter weights opposite the crank or flywheel, the inventors use disks with weights, placed on tne crank arm, leaving the wheels in perfect bearing. In governing the speed, the Worthington engine abolishes the automatic intake by using mechanically-operated valves which cut off the gasoline supply when the engine is above speed and misses. Another feature is the offset crankshaft, which gives the crank an advantage of 20 degrees when the charge is exploded at its greatest compression. A stock company is being organized to manufacture the engine.




WHITE STEAMER USED IN VACUUM CLEANING PROCESS

## FIRE APPARATUS FOR HAMILTON

The new motor car truck of the Hamilton fire department, Hamilton, Baltimore county, Md., was christened Monday and formally placed in commission after having withstood a number of severe tests. The new horseless fire apparatus was built in Hamilton by Joseph F. Luhrman, a blacksmith. As a reward for his work Luhrman has been elected captain of the company. The motor is a two-cylinder 30-horsepower. The truck is equipped with one 60-gallon chemical tank and a 60-gallon auxiliary tank. It carries extension, roof and scaling ladders. It also has 1,000 feet of regular hose and 200 feet of chemical hose, thus in reality being a chemical engine combined with the truck. On the front of the car is a 500-candlepower acetylene light and two oil lamps. There are other lamps on the side and rear. There are also four extra charges for the chemical engine, twelve buckets, two hooks, two axes and two crowbars. Eight men compose the fire company and the new fire apparatus represents an outlay of $3,750.



ELECTRIC MOTOR ON WHITE STEAMER

## TAXIS FOR INDIANAPOLIS

Within a short time Indianapolis promises to be well supplied with taxicabs. John E. Morand, of the Frank Bird Transfer Co. and Indianapolis Transfer Co., has placed an order for ten Coppock cars. A company of Indianapolis men is being organized and they have placed an order for ten Overland taxicabs. Charles W. Sheetes & Co. also have ordered four Lambert taxicabs. At the present time taxicabs are not operated in the city.

## ORDER MOTOR FIRE RIGS

Two Indiana cities have decided to adopt motor fire equipment and have placed orders accordingly. Upland has placed an order for a four-cylinder gasoline fire engine with the Howe Fire Engine Co., of Indianapolis, while Gary has ordered a $4,000 chemical propelled by a gasoline motor from the Webb company.

## MORE TAXICABS

Dr. W. L. Henderson, of Milwaukee, is authority for the statement that a taxicab company is being organized in Milwaukee and that four cabs will be operating by April 20. Several Chicago taxicab men are said to be back of the company. A garage will be erected at a central point in Milwaukee.

# Manufacturers' Communications

## CLEANING OUT CASINGS

AKRON, O.—Editor Motor Age—Our head vulcanizer says about 20 per cent of the inner tubes which come into the repair department of our factory for repair show signs of dirt having been dropped into the cover when one bead had been detached by the roadside, and having afterward set up friction between cover and tube when the tire was replaced. Consequently, whenever a tube is changed by the roadside, before the new tube is inserted the interior of the cover should be mopped out from top to bottom on each side with a dry rag first of all; the wheel should then be spun to loosen any road dirt or grit in its interior, and when one is certain that all foreign matter has dropped to the bottom of the cover at the lowest point of its circumference, that part of the cover should be carefully mopped out with a rag slightly damped. The cover may then be relubricated with French chalk in entire certainty that the new tube will behave guilelessly.—Goodyear Tire and Rubber Co.

## AGAIN SHAFT VS. CHAIN

New York—Editor Motor Age—In a recent number of Motor Age John J. Ide comes to Mr. Michel's rescue in a defense of the chain drive, and states that he firmly believes that the chain is the best type of final drive for high-powered cars. Mr. Ide says that the Lozier company in 1907 agreed with him and claimed that the chain was far the superior of the two. If Mr. Ide will read the 1907 Lozier catalog describing the chain-driven car of that year, he will find that the Lozier endorsement of the chain was not an unqualified one, the preference for the chain being confined to high-powered cars. The reason for preferring the chain at that time was given in the following language:

> As long as small cars with short wheelbase and comparatively light weights are prevalent, the shaft drive, owing to its cleanliness, practically constituted the most desirable form of motor car power transmission, but with the increased weight and longer wheel bases of the modern high-powered car has arisen a necessity for heavy, rigid rear axles. As the cardan shaft requires a divided rear axle and is called upon to do double duty in driving the car and at the same time in carrying the weight, it is evident that equal strength and certainty of alignment cannot be obtained as in a car having a solid forged rear axle, the sole duty of which is to carry the weight of the car and driving wheels. The long wheelbase of the present day necessitates a very much longer driving shaft than formerly, and owing to the varying angles of the shaft due to the springs the tortuous transmission of power through universal couplings at these varying angles, and the torsion of this long shaft requires immense castings and trussing of the divided rear axle, resulting in friction and strains and stresses which form serious objections to the shaft drive.

I call Mr. Ide's attention to several objections to the shaft—in fact, practically the only ones given above which no longer exist. In the first place, the shaft is no longer required to do double duty in carrying the weight of the car and driving it, for with the introduction of the full floating type of rear axle, such as is used on the Lozier and other cars, one axle carries the weight of the car while the independent floating axles perform the driving functions. In the second place, the wonderful improvement in steels, owing to the discovery of alloys, permits of shafts, axles and other portions of the driving mechanism being made comparatively light, and still possessing physical properties which make it practically impossible to bend, break, or cause them to become misaligned under the most severe strains. In the third place, universal couplings, which were urged as an objection, no longer exist in the Lozier rear axle system, all of them having been eliminated, with the exception of the one single universal joint, such as is necessary in every well-designed high-powered chain-drive car.

"Improvement is the order of the age," and the manufacturer who fails to take note of advantages offered by improvements and discoveries will soon be outdistanced. While the chain-drive in 1907 was the best form of power transmission, it is not the best form today, and the Lozier company stakes its reputation on the prediction made over 1 year ago—that the chain-drive as relating to the motor car will soon become obsolete and a thing of the past. Chain power transmission far antedates the birth of the motor car and was adopted by the motor car builders because of its simplicity, the manufacturers of the early cars devoting their principal attention to motors, gear boxes and other problems, and the chain as the final drive part of the mechanism was adopted because it offered the quickest means of completing the car. Chain transmission is a form which permits of practically no improvement, and until the problems relating to other parts of a motor car somewhere near approached finality of perfection, designers made little effort to develop the possibilities of the shaft, and the reason why the Lozier cars of 1907 were of the chain-drive type was solely by reason of the fact that the objections to the crude forms of shaft-drive prevalent at that time had not been overcome. In addition to eliminating the objections urged against the shaft-drive of a few years ago, as above mentioned, the elimination of the torsion rod and the application of annular ball bearings in the differential mechanism are further improvements which have made the shaft drive not only possible for high-powered cars, but most desirable. Mr. Ide's defense of the chain and his arguments against the shaft lead us to believe that he has not studied carefully the late forms of shaft-drive mechanism, and if he will do so we believe his faith in the chain will be considerably shaken.

As to the question of speed, Mr. Ide believes with Mr. Michel that the chain-drive is the faster of the two, and as proof, states that the chain-drive cars have won every international race of the first magnitude since 1906. Here again Mr. Ide is speaking of the past and not of the present. Regarding Mr. Michel's own attempt to prove the superiority of the chain-drive car by the grand prize race at Savannah last November, I have referred him to the record taken by the Trego timing device which proved that the Renault, a shaft-drive car, made the fastest time during the race, attaining a speed of over 100 miles per hour. In answer to this Mr. Ide says, that while this is true, the fastest circuit of the course was made by a chain-drive car, he evidently being willing to admit that while for actual speed the shaft-drive car in this race proved itself to be faster, that for a long distance the chain was still superior as to speed. If he is willing to admit the superior speed of a shaft-drive car for short distances, but puts the matter on a sustained speed basis, let's go the limit and recall the long-distance contests of last season. The two longest races of the year were the 24-hour events at Brighton Beach, both of them being international affairs participated in by the latest types of shaft and chain-drive cars of America and Europe, and driven by some of the most expert drivers in the world. In these two races the world's record was broken by four cars, three of these being made by shaft-drive Loziers and the other being made by a chain-drive car of considerably greater horsepower.

Going back to Mr. Ide's citation that the great races since 1906 have been won by chain-drive cars, some of the greatest of these races have been won by the Mercedes, Panhard, Benz, Fiat and de Dietrich. All of these makers have recently, and for the first time, placed upon the market high-powered shaft-driven cars. Can Mr. Michel or Mr. Ide give me a single instance of any prominent manufacturer formerly producing a high-powered shaft-driven car, within the last 2 years, who is bringing out a new stock model with chain-drive?—The Lozier Motor Co., C. A. Emise.

# Some Recent Efficiency Experiments With the Gasoline Motor Car Engine

**EDITOR'S NOTE—Abstract of a paper entitled "The Effect of Size and Speed upon the Performance of an Internal Combustion Engine," by Bertram Hopkinson, M.A., M.I.C.E., read before the Incorporated Institution of Automobile Engineers of Great Britain.—Part III, Conclusion.**

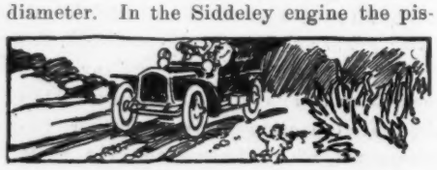
IT will be seen that the heat flow per unit area into the petrol engine is about one and a half times as great as in the gas engine, and that it is unlikely that it anywhere exceeds 7 thermal units per minute per square inch. The temperature gradient necessary to carry heat through cast-iron at this rate is about 100° C. per inch. The walls of the Siddeley engine are about $\frac{1}{8}$ inch thick. It appears that the mean temperature of the metal surface inside those portions of the cylinder which are jacketed can nowhere exceed that of the jacket-water by more than about 30° C. At high speeds the heat-flow is rather greater, but under all circumstances the temperature of the jacketed portions of the cylinder wall may be taken to be for practical purposes the same as that of the jacket-water. Much the same is true of the large gas-engine, though its walls are four times as thick, and the conclusion was tested in the case of that engine by sticking patches of tin-foil on the inside of the compression-chamber. They were apparently quite unaffected by the explosions, though the heat-flow here is greater than anywhere else in the cylinder. The melting-point of tin is 230° C. Professor Coker has also directly measured the temperature of the walls of a gas engine at points on the inner surface near the jacket-water, and has found it to be quite moderate. The clean metal surface is of course referred to here. A comparatively thin layer of carbon deposit may attain a much higher temperature. The author has not been able to find any measurements of the thermal conductivity of such a deposit, but it seems not impossible that it would only be one one-hundredth part of that of iron—this is about twice the conductivity of sulphur—in which case the surface of a layer one-tenth of an inch thick would reach a temperature of 700° C. when transmitting 5 thermal units per minute per square inch, and would be certain to cause pre-ignition.

**Waterjacket in Siddeley**

In the Siddeley engine the waterjacket is carried down to the bottom of the piston stroke. The only unjacketed parts of importance are the piston, the valves, and the caps above the valves. These parts will, of course, get very hot, because the heat has to travel far before it reaches the jacket-water. Some idea of the temperatures reached may be obtained by comparison with the Crossley engine, in which they were measured under a great variety of conditions by means of thermo-couples. The piston may first be considered. The temperature at the center of the piston in the Crossley engine when working fully loaded, with mixture strength of 11.2 per cent, giving a heat-loss of 2,300 British thermal units per minute, was about 450° C. above the mean temperature of the jacket-water. Of this fall of temperature about half was between the center and edge of the piston. Now the temperature reached by the center of a piston receiving heat at a uniform rate, H per unit area over the whole surface is proportional to $\frac{Ha^2}{t}$ where $a$ is the radius and $t$ the thickness of the face. It is probable that $H$ is much the same in the car-engine—when running at 930 revolutions per minute—as in the gas-engine, for, though the mean heat-loss per unit area, obtained by dividing total surface into jacket-loss, is greater, the effect of the lower compression is to reduce the share of heat received by the piston. The squares of the diameters are as 6 to 1, but the thickness of the piston-face in the Siddeley is only one-fifth of what it is in the Crossley. It would appear probable, therefore, that the temperature of the center of the piston is much the same in the two engines, viz., about 500° C. with boiling jacket-water.

**Stress by Unequal Heating**

In a paper now under discussion by the Institution of Civil Engineers, the author has investigated the state of stress which is set up in the piston by unequal heating. A flat piston face of uniform thickness, in which the temperature at the center is 500° C. and at the edge 300° C.—temperatures of the same order as those measured in the Crossley engine piston and probably much the same as in the Siddeley engine piston—will expand relative to the cylinder liner—which may be taken as at 100° C.—by about three-thousandths of its diameter, and will at the same time be subject to a tensile stress at the edge—in cast-iron—of about 7 tons per square inch, due to the compression of the hotter inner portions. In the Crossley engine the stress is relieved to some extent by bevelling the edge of the piston and thickening it at the back. The clearance left between piston and liner in this case is about four-thousandths of the diameter, which is sufficient under all conditions of running. In the Siddeley it is relatively less, being slightly under three-thousandths of the diameter. In the Siddeley engine the piston is domed, so that the expansion of the central parts is relieved by bending, and probably causes comparatively little stretch at the edge. The piston as a whole probably expands by but little more than the amount corresponding to the elevation of temperature at the edge, viz., about two-thousandths of the diameter. The effect of the doming is important, since it not only reduces the expansion to about two-thirds of what it would otherwise be, but also relieves the stress at the edge which, even in this little piston, would be of serious importance if the face were quite flat. As against these purely thermal effects is to be set the tendency of the gas pressure acting on a domed piston-head to expand the piston by a sort of toggle action. Rough calculation, however, shows that this is not likely to be serious in a piston 4½ inches diameter. In larger sizes it might be worth while to dish the piston-head instead of doming it, and so make the pressure reduce the edge tension instead of tending to increase it.



**Piston Temperature**

In these estimates of piston temperature in the Siddeley engine, the most doubtful point is the difference of temperature between the edge of the piston-face and the cylinder liner. It is quite possible that this depends to a considerable extent on such matters as the thickness of the intervening oil film, which may be quite different in the two engines. The expansion of the piston depends mainly on the temperature at its edge, and the remarks on this head are therefore rather speculative. On the other hand, the stresses in the piston depend on the difference of temperature between center and edge, and the author considers that his estimate of this—about 200° C.—is probably not far wrong.

The temperature of the center of the exhaust valve in the Crossley engine, when running with a rich mixture, is about 530° C. with boiling jacket water. That of the inlet valve, under the same conditions, is about 330° C. It is difficult to form any estimate of the corresponding temperatures in the Siddeley engine because the circumstances of heat flow are so different. Moreover, it would not be difficult to measure the temperatures directly, as has indeed been done by Professor Callendar on his air-cooled motor, and therefore there is not the same reason for speculating about them as in the case of the piston, where such measurement would be very difficult, if not impossible.

It has been pointed out above that the temperatures reached in a car engine are mainly important in connection with pre-ignition. In the experiments on the gas engine it was found that the temperature of pre-ignition was rather over 700° C. That is, a patch on the metal surface might be heated to 700° C. without any effect on the running of the engine, but

if that temperature were exceeded by a comparatively small amount, ignition took place from the hot patch. The result of this was to make the hot patch still hotter, so that the ignitions took place earlier and earlier, until after a few explosions the engine pulled up. These facts certainly have a bearing on the working of the gasoline engine. When pre-ignition has once started in a cylinder there is an almost instantaneous drop of power, and it is impossible to stop the pre-ignitions without taking the load off the engine. There is the same instability when nearing the point of pre-ignition as was observed in the gas engine, and it is due to the same cause, viz., the fact that a local center of ignition tends to get hotter because it is a center of ignition. The temperature of ignition of gasoline vapor and air mixtures has not yet been determined so far as the author is aware, and he is taking steps to find it by the same methods as those adopted in the gas engine.

### TALKS ROADS TO TAFT

Washington, D. C., April 12—Among President Taft's callers Monday was Samuel Hill, of Seattle, who wants to interest the president in the good roads congress which is to be held next summer at the Alaska-Yukon-Pacific exposition. Mr. Hill has for many years been engaged in working up public sentiment in favor of improved highways. A man of wealth, he has expended a large amount of his private funds in promoting education in road building. He believes that what the country needs now is not popular education as to the advantages of good roads, as those advantages have become generally recognized with the growth of the motor car industry, but road builders who know their business. The president was asked by Mr. Hill to send two officers of the government to the good roads congress. He was referred to the office of public roads, after the president had expressed deep interest in the subject.

### NEW IN THE SOUTHWEST

Carlsbad, N. M., April 2—The first motor car over the new line from Carlsbad to Midland, Tex., by the way of Pearl, Lovington, Knowles and Seminole, left here yesterday with a full load of passengers. The trip across the plains, which was formerly made by stage coaches, is 200 miles in length. Mail is carried from Midland to Knowles, and efforts are being made to reëstablish the service from Knowles and Monument to Carlsbad with the motor car as a means of transportation. Under the old system it took 4 days to get a letter to the county seat, while under the present arrangement it can get through in less than half that time. Only a few months ago this section was an unexplored region except to the cattlemen with their grazing herds, and the advent of the motor line is hailed with great delight.

# Information on the Foreign Markets Furnished By Federal Government

**EDITOR'S NOTE—The following information is secured from the Daily Consular and Trade Reports as published by the government:**

THE consul-general of Singapore, Thornwell Haynes, reports that L. A. Van Rijm, of the Netherlands Gutta Percha Co., of that city, has invented, and obtained patents for in the principal European countries, a new wheel for motors or other fast vehicles. Mr. Haynes' account of the invention follows: "The central idea of the motor car wheel invented by Mr. Van Rijm, of Singapore, is to have a wheel in the form of a solid disk, manufactured in one entire piece, and wholly of rubber. Rubber which is soft enough to give an easy, pneumatic-like tread would be unsuitable for the body of the wheel. This is obviated by having a hub vulcanized until it rings to the hammer almost like a piece of iron, and this hardness is gradually diminished from the center outward until 3 to 4 inches from the wearing surface, where it becomes so soft that it yields to a gentle pressure of the fingers. It is much softer than the rubber of an ordinary solid tire, because the latter must be hard enough to keep its place in a rim when subjected to the strain of side pull or slip. The all-rubber wheel has no rims, and therefore can be made as soft as desired. A pair of these all-rubber wheels has been fitted to a heavy car and used freely all over the island of Singapore for some weeks. It is said to be impossible to distinguish the motion from that of high-grade pneumatic tires. With such wheels it is impossible to get even a sharp jolt which a sudden descent on the metal rims occasionally produces over humpy roads. The wheel seems less a dust-raiser, and has none of that suction which makes the pneumatic the despair of road surveyors. Its great advantage is that it is unbreakable, and there can be no punctures. There are no spokes to snap or shake loose. Should the running surface become worn it can easily be restored by vulcanization in the ordinary manner. Any non-skidding device may be attached to the wheel if desired."

**Situation in Java**

Consul B. S. Rairden, of Batavia, replying to an inquiry from an American manufacturer, has the following to say about the sale of motor cars in Java: "Within the last 2 years sales of motor cars have rapidly increased in Batavia and adjacent districts of the Javanese capital. The importations of motor cars in 1905 amounted to $48,000, and in 1907 to $360,000. The agent for an American car company reports that he sold over 100 cars in 20 months. The machine he handles is a small one, selling for about $2,000."

**Conditions in Japan**

Consul John H. Snodgrass, of Kobe, describes conditions in Japan which prevent that country from becoming a good market for motor cars. He says: "Japan is unsuited for motor cars and carriages because of the narrowness of the city streets and the country roads, where the average track is only 33 inches wide for jinrikishas; also because the driveways are limited to the cities, where the streets are continually filled with pedestrians and playing children, making it a hazardous undertaking to attempt driving a car through those sections. Besides, the Japanese do not take to motor cars. Some 4 years ago a large American motor company sent over ten cars for introduction at Osaka, they being introduced for the purpose of taking the place of jinrikishas and competing with an electric street car line. This innovation in transportation did not appeal to the Japanese, though the tariff of fares was quite reasonable, and the venture ended in disaster to the investors, as they were not only poorly patronized, but the jinrikisha boys, fearing that their business would be destroyed, offered effective opposition to the innovation. A number of college boys, belonging to wealthy families residing in Tokyo have from time to time brought back with them from America high-class cars, but their use has been restricted to the limited districts of the capital city. It was thought that with the introduction of other foreign ideas the motor trade would expand throughout the empire, but such has not been the case, as the utility of the machine does not appeal to the Japanese. The use of the jinrikisha has so long been in vogue, and traveling on tramways and railroads is so reasonable, that even though the roadways permitted and the streets were not burdened with a ceaseless throng of human traffic there would be little probability of the wealthier class familiarizing themselves with the benefits derived from the use of motor cars. It is quite true that the purchasing power in Japan is greater than formerly, that the people are adapting themselves to modern methods and are accepting the inventions of the western world with alacrity, nevertheless, the urban districts are so circumscribed and the country roads merely footpaths through hills and valleys, that until there is a complete change in the construction of roadways and the widening of city streets motor cars in Japan will be limited to a few enthusiasts of foreign proclivities. The 50 per cent tariff duty is prohibitive."

# From the Four Winds

N S E W

**Twenty-four For Boston**—Boston may have a 24-hour race this summer. There was talk of one last year, but the owners of Readville track were opposed, it was stated, as it was feared that the surface would be too badly cut up.

**Nashville Bills Races**—Nashville, Tenn., announces a program of races for April 19 to 21 on the Cumberland Park track, once famous as a training and racing park for thoroughbred horses. This event will be run in connection with a 10-day spring festival and is being promoted by Richard Yancey.

**Talks Electricity**—Day Baker, New England manager of the General Vehicle Co., of New York, was the speaker at the meeting of the Electrical Vehicle Central Station Association recently formed in Boston. Mr. Baker took for his subject "Practical Application of the Electrical Vehicle."

**Motorists Become Heroes**—The motorists of Dayton, O., became heroes last week, when they deliberately drove their car down a 30-foot embankment into the Miami river to avoid running down a little girl who ran in front of their car along the top of a levee only 8 feet wide. F. O. Probasco was driving when the child was seen a few feet ahead of the car. The only alternative was the river.

**After a Boulevard**—A bill to authorize the appointment of a commission of motorists which would promote the erection of a boulevard between Buffalo and Niagara Falls will be introduced shortly in the New York state legislature. Motor clubs of western New York for a long time have been agitating the construction of such a road. At a banquet held recently at Niagara Falls, a resolution providing for the drafting of a bill to authorize the naming of such a commission of motorists and also containing a requisition for state aid in the construction of the boulevard, was unanimously approved. Pledges have been secured from Buffalo legislators promising aid in the advancing of the bill when it is presented.

**Milwaukee to Build**—The Milwaukee Automobile Club will build a $12,000 clubhouse this spring. This has been decided upon. The site will no doubt be on the Blue Mound road, a favorite thoroughfare for drivers, and on which several big country clubs are located.

**Makes Thieves Careful**—Excellent results have come from the standing offer of the Automobile Club of Buffalo of a reward of $50 for the arrest and conviction of anyone stealing the car of a club member. The first effect of the offer was to check to the minimum the stealing of cars of members. Car thieves quickly acquired a wholesome respect for any motor car bearing the club emblem on its radiator.

**Big Bridge Opened**—While 25,000 people waited for the word to be given which would permit them to make the first trip across the new $20,000,000 Queensboro bridge with which New York has spanned the East river, Mayor George B. McClellan in a Franklin touring car sped across the bridge to Long Island City and back, the round trip being one of approximately 3 miles, and officially declared the structure open to traffic.

**New Motor Idea**—A motor car propelled by compressed air and compressing its own air as it goes along was a novelty at the patent office at Washington last week. J. I. Pittman, of Valdosta, Ga., is the inventor, and when he uncorked the idea in a letter to the patent office the officials laughed politely, and, smelling a perpetual motion rat, asked Mr. Pittman for more explanations. Mr. Pittman, being a man of action, grabbed his trusty carpet sack and started with the model therein for Washington. As soon as the officials saw his machine they agreed that it was patentable and soon it will be fully protected, not only in America, but in five foreign countries.

**Springfield Abandons Hill-Climb**—The Springfield Automobile Club, of Springfield, Mass., has decided that it will not run a hill-climb this year. Last fall the club held a very good climb on Wilbraham hill, but it proved expensive. The entrance fees paid for the prizes, but when it came to settling the bill for road repairs it was found that it amounted to $1,200. The club is now interesting itself in repairing the highway between Holyoke and Northampton, which is used much by its members.

**Activity Abroad**—An American consul in Asia Minor reports that two of the leading business men in the city in which he is located are organizing a company to run motor cars between two points in that region. The newly-formed company contemplates the purchase of ten cars, each to have a seating capacity of ten or twelve passengers, and the machines must be strong and well built, because of the poor roads. It has been announced that a project has been submitted to the municipal authorities of Frosinone, Italy, relative to the establishment of a motor car service to Piperno and Sora.

**Williams County Awakens**—If present plans do not miscarry Williams county, Ohio, will be transformed almost past recognition during the coming season and practically a new field will be opened to the motor car market. Williams county, whose county seat is but a village, has for long enjoyed a sort of mediaeval peace and quiet, and progress and evolution have been but unmeaning sounds in the ears of its people. Roads have been reminders of the days of the old-time logging camps full of ruts and chuck holes and in the rainy season well nigh impassible, even the wheels of a light buggy sinking to the hubs in the soft mud during the early spring months on its most traveled highways. This season, however, the fairy prince has arrived or some other mysterious power has awakened this modern sleeping beauty, for the county is up in arms clamoring for road improvements and an election will be held this month for the purpose of voting a $100,000 bond issue for road improvements in Pulaski township. The roads are to be improved and it is said there is little question but that the proposed bond issue for Pulaski township, in which Bryan is located, will pass by an overwhelming majority, as all the

MAYOR MCCLELLAN, OF NEW YORK, IN FRANKLIN AT QUEENSBORO BRIDGE DEMONSTRATION

influential farmers are intensely interested in the project. The money is to be spent in draining, grading and macadamizing the highways.

**Joy Riding Penal Offense**—The New York state senate at Albany, N. Y., has passed Senator Hill's bill making joy riding, or the unauthorized use of vehicles, a penal offense and also making the damaging of a motor car a penal offense.

**Liverymen Give Up**—Out of four liverymen doing business in Ida Grove, Ia., 6 months ago, three have been forced out of business by the large number of motor cars in use. There are forty cars owned inside the city and farmers living near town.

**Cemetery Now Open**—The directors of Oak Grove cemetery, at LaCrosse, Wis., one of the most exclusive burying grounds on the Mississippi river, have raised the ban on motor cars, and hereafter they will be permitted to enter the grounds at will. Some time ago it was decided to exclude the horseless vehicle, but so many corteges are composed largely of them that the order was found to be extremely harmful to the interests of the owners of the cemetery. The Mound cemetery at Racine, Wis., was closed to cars for 1 week last year, but speedily thrown open to all when a voluminous protest arose from the residents of Racine.

**Prepare For Parades**—Outdoor motor shows will be the features of two big home-comings in Wisconsin this summer, and it is expected that they will rival the famous floral parades of California. Milwaukee and Racine, the two largest cities of the Badger state, have arranged for the parades. Plans are being made in Milwaukee for 500 cars in line. At Racine, James W. Gilson, sales manager for the Mitchell Motor Car Co., has been appointed chairman of the committee in charge of this feature, and it is promised that the Mitchell works will have a large number of new cars in line.

**Bridge Day Plans**—Plans are rapidly maturing for the motoring celebration to take place June 12 to 17 on Long Island, in connection with the formal opening ceremonies of the new Queensboro bridge. A. R. Pardington is chairman of the motor division of the week's program and has made the first definite announcement as to what will take place in the way of motoring activity. Tuesday, June 15, and Thursday, June 17, will be devoted to motor sports exclusively. On Tuesday there will be a novel non-technical touring contest on Long Island. On June 17 there will be a parade of decorated cars across the bridge and trophies are offered for the three most artistically decorated machines. Vice-chairmen of the division are: Lieutenant Kingsley L. Martin, Frank G. Webb of Long Island, Robert Lee Morrell, Alfred Reeves, E. P. Chalfant, S. A. Miles, E. Rand Hollander, Frank Eveland, A. G. Batchelder, Jefferson de Mont Thompson, Charles Jerome Edwards, J. Adolph Mollenhauer, Roy C. Gasser, George H. Hubbell, R. J. Wollmuth, H. B. Fullerton, Russell A. Field and Percy Owen.

**Race in Texas**—In a speed contest in which a Franklin and Maxwell participated between Amarillo and Plainsview, Tex., a distance of 158 miles, the latter car won out by 34 minutes, making the entire distance without mishap. The Maxwell left Amarillo at 1 p. m. and the Franklin 20 minutes later.

**Fighting White Plague**—The national fight against tuberculosis is centering in Ohio in Cleveland, and the motor car is already beginning to play an important part in the war against the white plague. The Auto Shop Co., of that city, is preparing a big six-cylinder Thomas to be used in aiding the Associated Charities, the body having in hand the active work against the disease. A special cot will be placed in the Thomas car and may be used by those patients whose condition is so serious that they cannot sit upright. Plenty of blankets and soft bedding will make their trips comfortable.

**Non-Skids Necessary**—George C. Diehl, a member of the Automobile Club of Buffalo, who is also chairman of the good roads board of the American Automobile Association, has come out with the statement that at certain seasons of the year and on certain classes of roads it is absolutely imperative that the motor vehicle be equipped with non-skidding devices, just as it is necessary on certain roads that wagons be equipped with narrow tires. "There is no question," he says, "but that both of these devices under certain conditions work injury to the road, but the motorists feel that the great problem is to construct roads which will withstand this traffic and which will permit the use of non-skidding devices at those seasons of the year when they are necessary to protect the user of the motor car as well as the general user of the road. They believe that any regulation which does not provide for such use will be unenforceable and worse than no regulation at all."

**Will Improve Roads**—The voters of Grand Traverse county, Mich., will decide this spring whether they wish the county road system for this county. Meetings are being held among farmers and others and the prospects are good for the improvement of the roads. The prettiest and best partonized of Michigan's summer resorts are in that county.

**Cheyenne Enthused**—At a meeting of the Cheyenne Motor Club, of Cheyenne, Wyo., the plan originated by the civic improvement committee of the club to construct a 5-mile race track at Frontier park just north of the city, met with enthusiastic approval, and the club pledged itself to push to rapid completion the building of the new track. The work will be begun immediately and will be pushed with all possible speed. It has been decided to do the work by financing it within the club, thus doing away with any subscriptions.

**Lozier Drivers Retained**—Harry Michener and Ralph Mulford, who have driven the Lozier cars in the principal events in which they have competed in the last 3 years, will continue to drive in the events in which the Lozier cars are featured the coming season. Michener is now on the Pacific coast and will take part in some of the western events during the next 6 weeks, after which he will return east either for the 24-hour race at Philadelphia or the Cobe stock car race at Chicago. Mulford will be seen in races for the last time this year and will take no part in racing events after the founders' week race in Fairmount park next October. Harry Cobe will probably take Mulford's place as a regular driver on the Lozier cars after this season.

SPECIAL HILL FOR TESTING PURPOSES AT BROOKLANDS TRACK, ENGLAND

# Brief Business Announcements

**Paynesville, Minn.**—John Theel is erecting a motor car repair shop.

**Hartford, Conn.**—Atcheson & Royal have opened a tire repair shop on Allyn street near Ann.

**Deadwood, S. D.**—George S. Fuller will open a garage. He has the agency for the Chalmers-Detroit.

**Perth Amboy, N. J.**—The Perth Amboy Garage Co. has been incorporated with a capital stock of $50,000.

**Hartford, Conn.**—Leonard D. Fisk, of the Hartford station, 43 Wells street, has been appointed local agent for the Locomobile.

**Los Angeles, Cal.**—The Electrical Construction Co. has been appointed agent in Southern California for the Fritchle electric car.

**Los Angeles, Cal.**—W. G. Hansen and L. L. Whitman have organized a new company and will engage in the manufacture of motor cars.

**Wilkinsburg, Pa.**—The Coöperative Automobile Co. has opened a garage at 605 South avenue. This company has the local agency for the Moline car.

**Aguascalientes, Mexico**—Fernando Trigieros, who is engaged in the motor car business in the City of Mexico, is making preparations to open a garage in this city.

**Buffalo, N. Y.**—A new company has been organized here, under the name of the L. W. Holt Co., and will deal in motor cars and power boats. The company is capitalized at $10,000.

**Springfield, Ill.**—The Fiat Automobile Co., a New York corporation, has filed articles of incorporation in this state with a capital stock of $100,000, and will deal in motor cars, supplies, etc.

**Kansas City, Mo.**—W. L. Walls, who has been connected with the Studebaker and Buick in this city, is about to remove to St. Louis, where he will act as general manager for the Maxwell in that city.

**San Antonio, Tex.**—H. J. Owens, who has been acting as commercial agent for the Iron Mountain railroad, has given up the railroad business, and has been appointed manager of the San Antonio Taxicab Co.

**Denver, Colo.**—At the close of the present season, the Mammoth skating rink is to be extensively improved and altered, and will be turned into a garage. A specialty will be made of taxicabs, and also a line of Seeing-Denver buses.

**Newark, N. J.**—The Cope Co. has been organized with a capital stock of $50,000, by M. M. Dood, A. Church and G. G. Conley. Another local company to be incorporated is the Automobile Renting Co., which has a capital stock of $25,000. J. S. Kinsey, R. C. Best and O. E. Jackson are the incorporators.

**Detroit, Mich.**—J. P. Schneider has been appointed state agent for the Matheson car.

**Portland, Ore.**—The F. L. Keats Co. has been appointed distributor in this state for the Lozier.

**Philadelphia, Pa.**—The Rittenhouse Motor Co., recently organized, has taken over the representation of the Kisselkar.

**Springfield, O.**—Stern Tittle, of Pensacola, Fla., has been elected vice-president of the National Motor Co. of this city.

**New York.**—The Post Motor Co. is preparing to remove from its present quarters at 1625 Broadway to 229 West Fifty-fourth street.

**New York City**—The B. F. Goodrich Co. has filed plans for the erection of a motor car storage house at 225-227 West Fifty-seventh street.

**Newark, N. J.**—The Essex Storage Battery and Repair Co. has opened headquarters at 264 Halsey street. W. G. Hood and J. Simon are the members of the firm.

**Philadelphia, Pa.**—A change has been made in the management of the Autolight and Motor Supply Co., of 608 North Broad street. John H. Rosen is the new manager.

**New York**—The Acme Motor Car Co. has just leased the large showroom at 1540-1542 Broadway, between Forty-fourth and Forty-fifth streets, and will locate its headquarters there.

**Detroit, Mich.**—John E. Peters, who has been connected with the Northern Automobile Co., has left that company and in the future will be connected with the sales force of the Ford Motor Co.

**Utica, N. Y.**—Bailey & Bowne, of Whitesboro and Wiley streets, have been appointed agents for the Anderson. They will carry two and four-passenger vehicles, and also a stock of light delivery trucks.

**Bessemer, Ala.**—W. T. Warlick has opened a garage and repair shop in the building formerly occupied by the S. E. Jones Real Estate Co. He will also conduct an electrical company.

**New York**—W. W. Taxis has been appointed assistant sales manager in the east, to assist G. W. Bennett, who has full charge of the sales department of the White Co. in the eastern states.

**Springfield, Ill.**—The Continental Caoutchouc Co., a New York corporation, has filed articles of incorporation in this state with a capital stock of $60,000, and will make its headquarters in the city of Chicago. The company will deal in rubber goods.

**Los Angeles, Cal.**—William P. Bosbysell, who has the local agency for the Dorris, is erecting a new garage on South Olive street.

**Duluth, Minn.**—The Duluth Motor Vehicle Co. has been incorporated by Charles, Evelyn S. and Arthur Grover Fitzgerald. The capital is $50,000.

**Stockton, Cal.**—J. C. Skinner, of this city, who has been engaged in the repair business, has filed a petition in bankruptcy with liabilities of $12,530.

**New York**—The Knox Automobile Co. has leased the showrooms at 1966-1968 Broadway now occupied by the S. P. O. Co. and will take possession on May 1.

**Delhi, N. Y.**—F. S. Cook, of Hancock, has purchased a twenty-passenger bus from Thomas Keery, and will run a motor bus line between Hancock and Cadosia as soon as the roads permit.

**Muncie, Ind.**—The Muncie Wheel and Jobbing Co., which manufactures vehicle wheels, has just contracted for the erection of a new factory building, to be devoted exclusively to motor car wheels.

**New York**—George C. Johns, who has been acting as manager of the American Mors Co., has decided to add the Inter-State and Marmon cars to his list. Peter Fogarty has been appointed sales manager.

**Marquette, Mich.** — The Marquette County Traction Co. has been organized, and will run a motor car service between Marquette, Ishpeming, and Negaunee. Four large passenger cars are to be put in the service.

**Cleveland, Ohio**—Arrangements have just been made for a permanent representative in this city for the Oakland. In the future this machine will be handled by the Avenue Motor Car Co., of 1806 Euclid avenue.

**San Francisco, Cal.**—W. M. Gardiner, who for the past 7 years has been connected with the White company, has left that concern and in the future will be associated with John Mitchell in the Western Electric Vehicle Co.

**Newark, N. J.**—The Motor Car Co. of New Jersey has taken the agency for the Matheson. This concern is also representative for the Cadillac. The contract for the new car was signed some time ago, but did not become operative until April 1.

**Philadelphia, Pa.**—I. J. Morse, who has been acting as local manager of the Locomobile company for some time, has been transferred to the San Francisco branch of the same company and will look after the interests of the Locomobile company on the western coast, and also in Honolulu

and Japan: S. B. de Keim will take charge of the local agency.

**Trenton, N. J.**—The Adams Electric Co. has opened a garage on East State street.

**Newark, N. J.**—The Weldon & Bauer Co., of 200 Halsey street, has taken the agency for the Clipper.

**Trenton, N. J.**—The Empire Automobile Tire Co., which recently erected a plant in this city, has found it necessary to put on an addition.

**Birmingham, Ala.**—Plans are under way for the organization of a company to manufacture a new car to be known as the Great Southern Six.

**Philadelphia, Pa.**—The Fisk Rubber Co., which is now located at 1309 Race street, will remove to 258 North Broad street as soon as the necessary alterations are completed.

**Pittsburg, Pa.**—Hartley Howard has been appointed secretary of the McGraw Burgess Vertical Tire Co., while the duties of general manager will be fulfilled by W. L. Burgess.

**Philadelphia, Pa.**—Application will shortly be made for a charter for a new company to be known as the Franklin Motor Car Co., which is to operate a garage and deal in motor cars and other machinery.

**Council Bluffs, Ia.**—The Nevada Motor Co. has purchased the property at Washington avenue and Main street, and will shortly commence the erection of a motor car factory. The company will engage in the manufacture of motor car drays and trucks.

**Marshall, Minn.**—R. M. Addison & Son have the agency for the Maxwell.

**Los Angeles, Cal.**—The Standard Motor Car Co. has been appointed agent for the Velie.

**Valley City, N. D.**—Eugene Pegg and George Hagedorn will open a garage and repair shop.

**Cando, N. D.**—N. F. Case has secured the agency for the Maxwell and the Minneapolis motor cycle.

**New York**—Jesse Frohlich, the treasurer of the Times Square Automobile Co., has leased the property at 1591-1597 Broadway.

**Cleveland, Ohio**—The Auto Acetylene Light Co., located at 1120 Euclid avenue, is making preparations to go into the manufacture of gas tanks.

**New York**—The Cameron Motor Co. has taken possession of its quarters on the first floor of the Automobile building at Broadway and Sixty-fourth street.

**Milwaukee, Wis.**—W. V. B. Campbell, of Horicon, has been appointed state agent for the Lozier and has established headquarters at Farwell avenue and Brady street, Milwaukee.

**Seymour, Ind.**—The Union Auto Co., now located at Albany, Ind., has signed a contract to remove to this city. No bonus will be asked, but instead a commodious factory building is to be provided, and the company will remove here as soon as the plant is ready.

**Lawrence, N. J.**—Frank W. Thatcher has been appointed agent for the Rambler.

**Philadelphia, Pa.**—The Regent garage, of which Frederick J. Mears is the proprietor, is now located in its new building.

**Mount Holly, N. J.**—Arrangements are under way for the establishment of a motor bus line between this town and Smithville.

**Albany, N. Y.**—Byrne & DuBois, of 12 Plain street, have leased a part of the yard of the E. W. Howell Coal Co., and will erect a one-story repair shop.

**Detroit, Mich.**—The Hayes Mfg. Co., which came here some years ago from Cleveland, and has been engaged in the manufacture of sheet metal parts and forgings, has found it necessary to erect another addition to its plant.

**Springfield, Ill.**—The Nadall-Van Sicklen Mfg. Co. of Chicago, has been incorporated with a capital stock of $50,000, and will engage in making the Nadall demountable rim. The incorporators are G. L. Wilkinson, W. A. Scott and C. A. Richmond.

**Harrisburg, Pa.**—The Pittsburg Auto Tire Repair Co. of Pittsburg has been incorporated under the name of the Pittsburg Auto Equipment Co. No change is to be made in the management, or the line of goods handled by the company, the change being confined to the new name.

## RECENT INCORPORATIONS OF CONCERNS INTERESTED IN MOTORING INDUSTRY

**New York**—Brown-Dewey Co., capital stock $10,000, to manufacture and deal in supplies for motor cars and vehicles; incorporators, M. A. Dewey, Jr., G. C. Brown and Moses Simon.

**Buffalo, N. Y.**—Bi-Cal-Ky Auxiliary Spring Co., capital stock $100,000, to manufacture auxiliary springs for cars, trucks and vehicles; incorporators, C. H. Bicalky, C. H. Lockwood and F. J. Bommer.

**New York**—Tax-A-Cab Auto Co., capital stock $2,000, to do a motor livery business; incorporators, H. M. Browne, E. J. Forham and J. J. Harper.

**Syracuse, N. Y.**—Willis & Van Brunt Co., capital stock $20,000, to deal in motor cars and carriages; incorporators, H. B. Van Brunt, T. F. Willis and J. B. Fiedler.

**Chicago**—Allen Fiedler Co., capital stock $5,000, to manufacture and deal in motor vehicles and accessories, as well as conducting a garage; incorporators, C. R. Browne, Charles Martin and H. Ryall.

**Trenton, N. J.**—Pittsburg Auto Delivery Co., capital stock $125,000, to construct vehicles of every kind; incorporators, W. A. Peters, A. Wood and V. A. Murray.

**New York**—W. C. P. Taxicab Co., capital stock $500,000, to build and traffic in motor cars, engines, etc.; incorporators, T. C. Press, J. T. Quinlan and S. S. Slater.

**St. Louis, Mo.**—C. F. & J. R. Brown Automobile Co., capital stock $5,000, to deal in motor cars; incorporators, J. R. Brown, D. O. Taylor.

**Chicago**—Premier Motor Co., capital stock $12,000, to manufacture motor cars and accessories; incorporators, Webb Jay, W. E. Stalnaker and Robert Eveland.

**San Antonio, Tex.**—Seeing San Antonio Co., capital stock $6,000, to run sight-seeing stages and motor cars; incorporators, P. B. Schmeelk, W. S. Beavers and J. N. Manchester.

**El Paso, Tex.**—El Paso Motor Car Co., capital stock $10,000; incorporators, H. L. Roper, P. C. Rust and R. J. Bronson.

**Chicago**—Ajax Auto Co., capital stock $5,000, to do a general motor car and repair business; incorporators, A. W. McGovney, F. W. Patterson and H. C. Calhoun.

**Hammondsport, N. Y.**—Herring-Curtiss Co., capital stock $360,000, to manufacture motors, motor cycles, boats, vehicles, balloons and flying machines; incorporators, A. W. Gilbert, C. Holtman, W. B. Denton.

**New York**—Auto Export Co., capital stock $1,000, to manufacture motor cars, motors, self-propelled vehicles, etc.; incorporators, S. K. Lichtenstein, Henry M. Wise and William F. Ashley.

**Fulton, N. Y.**—The Fulton Livery Co., capital stock $20,000, to run a motor livery and rent cars; incorporators, M. A. Thomson, C. A. Reynolds and G. S. Piper.

**Portland, Me.**—Harris Car Co., capital stock $10,000, to manufacture and deal in motor cars; incorporators, A. F. Dunham, M. S. Wells and F. Hale.

**Detroit, Mich.**—Brush-Chicago Motor Co., capital stock $11,000; incorporators, Frank Briscoe, E. D. Moessner and Paul R. McKenney.

**Rockford, Ill.**—Cotta Transmission Co., capital stock $40,000, to manufacture motor cars and accessories; incorporators, C. Cotta and H. C. Kingsley.

**Amesbury, Mass.**—Millen Brothers, Inc., capital stock $50,000, to do a general motor car business. T. C. Miller is the president and S. Anderson the treasurer.

**Roanoke, Va.**—Virginia Garage Corporation, capital stock $1,000 to $25,000, to do a garage business; incorporators, E. L. Flippe and R. B. Wortham.

**Hempstead, N. Y.**—Cunningham Motor Express Co., capital stock $3,500, to do a general transfer express business; incorporators, Robert and James A. Cunningham and Alice M. Cunningham.

**New York**—Omnium Tire Import Co., capital stock $10,000, to deal in motor car tires and sundries; incorporators, Simon and Bourchard Haas and Edgar Block.

**Boston, Mass.**—American Reversible Motor Co., capital stock $50,000, to manufacture and deal in engines and machinery of all kinds; incorporators, A. C. Day, G. M. Ludden and W. M. Ludden.

**Detroit, Mich.**—C. M. Hall Lamp Co., capital stock $150,000, to manufacture motor car and cycle lamps and accessories.

**Camden, N. J.**—Sterling Gas Machine and Mfg. Co., capital stock $25,000, to manufacture carbureters and gas machines; incorporators, L. C. Simpson, J. W. Mills and G. A. Darlington.

**Morristown, N. J.**—William Stevenson Garage Co., capital stock $50,000, to engage in the manufacture and repairing of motor cars, etc.; incorporators, W. and A. C. Stevenson and W. W. Crane.

**Brooklyn, N. Y.**—Flushing Automobile Garage, capital stock $1,000; incorporators, J. A. Mead, Amelia Guion and Patrick Mead.

**Jersey City, N. J.**—Originator Mfg. Co., capital stock $125,000, to deal in motor cars and general merchandise and buy and sell real estate; incorporators, Vernon J. Miller, of New York city, J. C. Inwright and B. L. Inwright, of Jersey City.

**Boston, Mass.**—Roy A. Faye Co., capital stock $50,000, to do a general motor car business; incorporators, R. A. Faye and F. D. Bennett.

**Chicago**—Sloane Motor Co., capital stock $35,000, to manufacture motors and accessories; incorporators, A. W. Baer, W. W. Sloane and D. M. Carter.

**Boston, Mass.**—Hilton Mfg. Co., capital stock $100,000, to engage in the manufacture and sale of motor car supplies. R. W. Sawyer, Jr., is the president of the company and J. S. Stone treasurer.

**New York**—Touring New York Automobiles, capital stock $5,000, to operate sightseeing cars; incorporators, G. H. Mulligan, R. H. Greene and M. S. Pasner.

**Elkhart, Ind.**—Industrial Automobile Co., capital stock $75,000; incorporators, T. J. Shanahan, W. S. Long and L. D. Hall.

**Anderson, Ind.**—Anderson Motor Co., capital stock $10,000, to manufacture motor vehicles; incorporators, T. C. Welbes, S. M. Hickman and E. G. Worden.

**Detroit, Mich.**—De Luxe Motor Car Co., capital stock $150,000; incorporators, M. M. Kaufman and S. R. Kaufman, of Marquette, and D. E. Kaufman, of Detroit.

**Chicago**—Auto Lock Co., capital stock $50,000, to manufacture and deal in motor cars, accessories, etc.; incorporators, R. W. Dunn, C. J. Monahan and L. A. Wisner.

# Among the Makers and Dealers

**Swanbrough Adds One**—E. W. Swanbrough has taken the Denver agency for the Hupmobile. He will be located at 1618 Court place.

**Stock With Jewel**—F. A. Stock, formerly connected with the Franklin line in Cleveland, has been appointed manager of the Jewel Motor Car Co., of Cleveland.

**Davidson Locates**—J. L. Davidson, superintendent of the former Rainier plant, now the Marquette, has assumed his new duties as superintendent of the American Motor Co.'s factory in Indianapolis.

**Cleveland Events**—The Auto Sales Co., 1121 Chestnut avenue, N. E., Cleveland, O., recently organized, has taken the agency for the Hupmobile, while two other cars, the Regal and Moline, are quartered in the same place. The former is being sold by the Regal Motor Sales Co., while J. C. Hipp has the agency for the Moline. The Chadwick Six has re-entered the field under the management of J. C. Roach.

**F. C. Gilbert Resigns**—F. C. Gilbert, who for 14 years was connected with the Pope Motor Car Co., in Toledo, O., and of late has been general sales manager of the Toledo Motor Co., resigned his position last week and expects for the present to take a short vacation. Gilbert remained constantly at his post during the period of the Pope receivership, marketing during the receivership upward of a million dollars' worth of goods.

**Pittsburg Events**—The Hiland Automobile Co. has secured the agency for the Knox at Pittsburg. It already had the agencies for the Peerless and E-M-F lines. The Central Automobile Co., of 5989-5991 Center avenue, East End, has been reorganized under the name of the Central garage. Its manager will be Fred B. Rathbun. The Troubleproof Supply Co. is fitting up a building at 324-326 Craig street, which it recently acquired. The company has secured the western Pennsylvania agency for the Batavia tire. J. H. Wall will be manager.

**Divide the Business**—The Gilbert Mfg. Co., of New Haven, Conn., was incorporated in 1898 for the manufacture of corsets. In 1903 the company commenced the manufacture of motor car accessories, both lines of work being continued under the same firm name. The motor car accessory business having grown to such large proportions, the company has deemed it advisable to separate the two lines, and to this end it has incorporated a new company for the manufacture of motor car accessories, this company being incorporated under the old name, while the manufacture of corsets will be continued as a separate concern under the name of Gilbert Corset Co. F. E. Bowers has bought out the controlling interest in the new corporation, and will continue the active management of the business in the future, as he has in the past.

## Rambler Holds Pelton Cup

The Rambler roadster to which was awarded the Pelton cup, a now famous trophy on the Pacific coast, has an interesting history replete with record-breaking stunts. It has been driven in all of these by L. B. Harvey. The car began breaking records on June 11, 1908. Harvey's first record was from San Francisco to San Luis Obispo; he made the distance, 246 miles, in 7 hours 47 minutes. On September 17 he drove from San Francisco to Los Angeles, 486 miles, in 19 hours 6 minutes. On September 26, Harvey made the round trip to San Diego and return by way of the valley route of 331 miles in 11 hours and 31 minutes and on December 12 made the same run in 10 hours 32 minutes, the record. On January 3 of this year he made the round trip record from San Francisco to Del Monte, and in the 200-mile mud plug event on February 7 made a perfect score. On March 15 he drove the Rambler around San Francisco bay, 100 miles, in 2 hours 23 minutes, the record.

**Two St. Louis Deals**—The Van Arx Brothers Auto Co. of St. Louis has acquired the local agency for the Marion car. The Doyle-Curran Motor Car Co. has accepted the agency for the Haynes.

**New Building For Remy**—Three thousand magnetos a week will be the capacity of the Remy Electric Co., of Anderson, Ind., when the new brick building, 200 feet by 70 feet, the contract for which has been let, is completed. The structure is to be ready for occupation within 30 days. Machinery has been bought and will be installed as rapidly as possible without interfering with the construction of the building. The new building is but the first of several which are to be completed before the beginning of the 1910 season. The 1909 demand is estimated at 60,000. The new structure will be of brick, fireproof, with plenty of windows and modern in every respect. One of the departments which will be enlarged by the factory addition will be the shop for making fittings for attaching magnetos to old model cars.

**Wheelock Makes Change**—F. A. Wheelock, formerly with the Whitten Gilmore company in Boston, has joined the sales force of the American Simplex Co. in the same city under Manager W. M. Turner.

**Glides Popular at Home**—The Bartholomew Co. has sold eighteen of its 1909 cars to buyers in the city of Peoria and six in Peoria county outside of Peoria, making twenty-four sales in the county of Peoria.

**Moore Is Rebuilding**—The garage of Harry S. Moore, Stoddard-Dayton and Brush agent in Cleveland, Ohio., which was destroyed by fire some time ago, causing the loss of close to $75,000 worth of machines, is being rebuilt, and by the latter part of the week will be ready for occupancy. Moore has added considerable additional floor space and has erected his new building on modern principles.

**Tire Plant Secured**—Washington, Pa., is patting itself on the back because George B. Wickersham and Donald E. Christman, of Pittsburg, and Wilbur J. T. Porter and Carl Schotzman, of Easton, Pa., are securing a site there on which they propose to erect a large plant for the manufacture of motor car and motor cycle tires. Mr. Wickersham recently severed his connection with the Punctureless-Automobile Tire Co., of Jamestown, N. Y.

**Recognize the Dealers**—The Boston Automobile Dealers' Association was represented at the conference held Tuesday at the Chamber of Commerce on transportation problems of New England, including the rail differentials and other matters of interest to shippers. It was the first time that the association has been recognized. The representatives of the motor industry at the conference were President James H. MacAlman, Vice-President J. S. Hathaway and Secretary Chester I. Campbell.

**Chalmers to Enlarge**—The Chalmers-Detroit Motor Co. has decided to double the capacity of its plant in Detroit. A new building, an exact duplicate of the present main building of the plant, will be erected in time for occupancy September 1. This will be 60 feet wide, 400 feet long, and three stories high. The new building, like the present main building, will be of concrete construction throughout, and will be situated east of the present main building and parallel to it, making one more unit in the layout of the plant. With other minor buildings that will be erected, this new unit will practically double the company's floor space and manufacturing equipment. The sales department's record showed Sat-

urday that out of the total output of 2,500 30 cars, the company could still receive from dealers on their allotments, orders for only 348.

**Gantert Stearns Agent**—G. Hilton Gantert, formerly of the Motor Shop and a prominent official of the Quaker City Motor Club, has secured the agency for the Stearns car in Philadelphia, and has opened salesrooms at 510-512 North Broad street.

**Federal Activity**—The Federal Rubber Co., of Cudahy, Wis., manufacturer of Federal tires, is now working on a production of 100 casings and 200 tubes daily. The exhibits at the various shows during the last 2 or 3 months have brought hundreds of new customers and the Federal tire is now on sale in nearly every section of the country.

**Takes Old Fritchle Building**—The Place Garage Co., of Denver, W. L. Place president, and R. C. Dillingham secretary and treasurer, has secured the entire building now occupied by the Fritchle Automobile and Battery Co. and will take possession May 1. The company will conduct an electric garage. The Fritchle company has secured a new location.

**Establishes Ford Agencies**—R. F. Kaehler, manager of the Baltimore branch of the Ford Automobile Co., which is the headquarters for Maryland and Virginia, announces that he has established three new agencies in Virginia. The new agencies will be at Danville, with Catlin & Gray; at Farmville, with H. H. Hunt, and at South Boston, with A. F. Franklin. Mr. Kaehler is making arrangements for a tour for owners of Ford cars.

**Franklin Statistics**—As an index of industrial activity figures are given showing the extent of the work of the traffic department of the H. H. Franklin Mfg. Co. at its factory in Syracuse. These figures show that for the past 6 months, constituting the first half of the present trade year, the shipments from the factory have aggregated 3,376,218 pounds. The shipments received include 2,399,477 pounds of merchandise, which with the addition of over 7,000,000 pounds of coal, 1,000,000 pounds of lumber and several hundred thousand pounds of other commodities, makes a total of 11,367,675 pounds. In this period 342 freight cars have left the factory carrying Franklin cars to purchasers throughout this country and abroad.

**Kissel Changes**—The Kisselkar's New York headquarters have been removed to 1875-77 Broadway. In changing its location, the name of the concern also changes from the Apthorp Motor Car Co. to the Kissel Motor Car Co., of New York.

**Royal Branches Established**—The Royal Tourist Car Co., of Cleveland, O., has established factory branches in New York and Chicago. The New York branch is located on the southeast corner of Sixty-second and Broadway. The Chicago branch is at 1253 Michigan avenue.

**Minneapolis Motor Mart**—J. R. Randolph and Harold Vorce arrived in Minneapolis from Chicago just about a year ago to open a branch of H. Paulman & Co., of Chicago, and in that year they have not only built up an excellent Pierce-Arrow business, but are now housed in a splendid building of their own, which they erected to fill the needs of their rapidly growing business.

**Considering Omaha Site**—Carl G. Fisher, of the Prest-O-Lite Co., of Indianapolis, was in Omaha last week looking over the ground with a prospect of locating there. Another representative of the firm, Mr. Moskowitz, was there a few days before the arrival of Mr. Fisher and had selected a number of sites on the outskirts of the city, which the latter is now considering. Whether or not the Prest-O-Lite Co. locates in Omaha, the Powell Supply Co. will become distributor of the tanks in that section of the country.

**French Branch For Mitchell**—The Mitchell Motor Car Co., of Racine, Wis., announced this week that it has closed negotiations for the establishment of a European branch at Paris. It will be in charge of Rene M. Petard, at 20 Rue de Tilsitt. James W. Gilson, sales manager, says the company will make a special effort to take care of customers touring abroad. The services of the branch will be placed at their disposal. Repairs will be made at Paris. "We will pay the freights and custom-house duties for them," said Mr. Gilson, "which they will, of course, have to pay when they receive the car in Paris. Information of every kind will be furnished free."

**Harshaw Made Manager**—The new Cleveland branch of the Firestone Tire and Rubber Co., located at 1918-20-22 Euclid avenue, is now open for business. W. A. Harshaw has been appointed local manager.

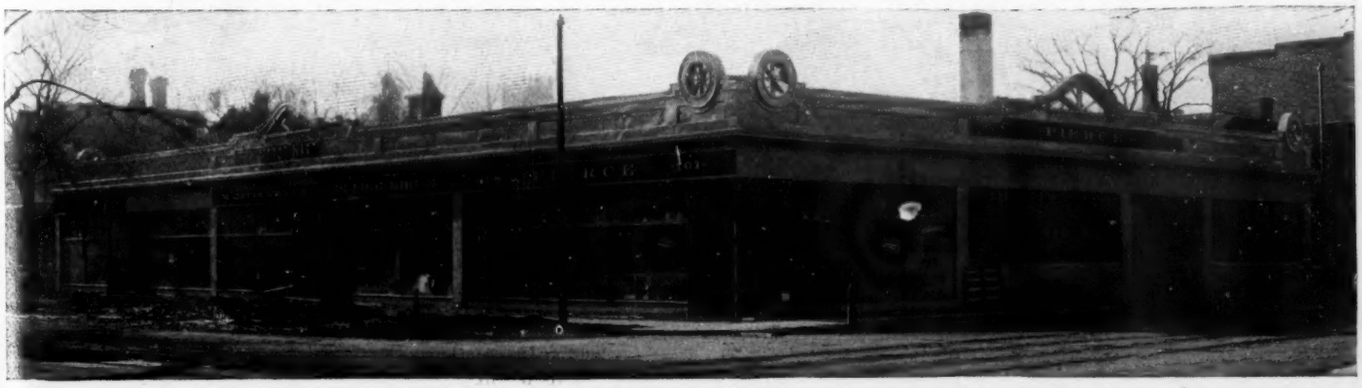
**Takes Brush Agency**—Hiram Cook & Sons, of Dutch Neck, N. J., have taken the Brush runabout agency for the eastern half of Mercer county, including Princeton, Lawrenceville, Hightstown and Pennington.

**McGookin Goes to Detroit**—E. W. McGookin, sales manager of the Stewart & Clark Mfg. Co., of Chicago, has been appointed manager of the company's Detroit branch. He left Saturday to assume his new duties.

**Needs Another Building**—C. S. Houghton, Baltimore agent for the Overland, has leased the building at 6 East Read street, which he will occupy as a salesroom and repair shop. Only cars undergoing repairs will be kept in the building.

**Moves to Niagara Falls**—The Leather Tire Goods Co. of Newton, Upper Falls, Mass., has completed a new two-story brick factory at Niagara Falls, N. Y., which it will occupy after May 1. The entire manufacturing plant and office will be moved to Niagara Falls the latter part of April. The new factory is located on Whirlpool avenue, near the Whirlpool rapids. It has over 10,000 feet of floor space and with the improved machinery which is being installed will have a capacity of over 300 treads per day.

**Big Overland Shipment**—A special train of fifteen cars, carrying fifty-three Overland cars left the plant of the Overland Automobile Co., in Indianapolis, a few days ago. They were consigned to the Western Motor Car Sales Co., of Kansas City. Within a few days the company will send another special train carrying twenty-five Overlands to Council Bluffs, Ia. A private car will be attached to the train and a touring car will be shown on a flat car, so that demonstrations can be made at the principal cities en route by the Overland salesmen.



MINNEAPOLIS' NEW MOTOR MART BUILT BY PIERCE-ARROW REPRESENTATIVES

# Development Briefs

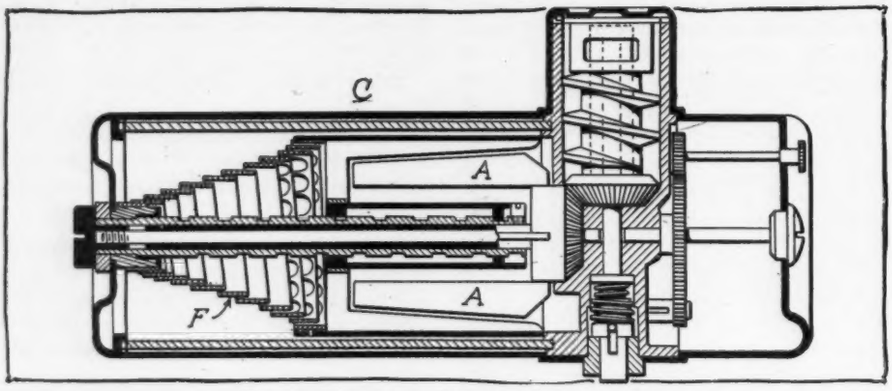



FIG. 1—SECTION OF CASGRAIN SPEEDOMETER

## NEW FORM OF SPEEDOMETER

COUCH & SEELY CO., of Boston, has a new form of speedometer which is different in many respects from any others yet placed upon the market. This instrument known as the Casgrain consists of a horizontal cylinder F, Fig. 3, containing a liquid and the operating mechanism of the speedometer. Connected by means of a bevel gear to the spiral drivingshaft is a set of paddles A which revolve in the liquid with which the cylinder is filled at a speed proportional to the rate at which the car is moving. This sets up a certain current in the liquid which tends to rotate the cylinder F on the shaft B. This cylinder F, however, is prevented from revolving continuously by means of an equalizing spring which holds the cylinder steady during the time the car is traveling at a constant rate of speed. This cylinder F contains the figures which represent the speed of the car and which are read through the slot in the outer casing. The figures are placed on the cylinder in a spiral consisting of four and a half turns, somewhat after the fashion of the threads of a screw. This allows a length of 28 inches for the scale of miles and, in consequence, each figure is $\frac{5}{16}$ inch in height. It will be seen that the spiral slot on the shaft B on which the cylinder F revolves corresponds to the pitch of the line of figures on the latter, and tends to keep the proper number opposite the opening in the outer casing. No opportunity is allowed for any of the liquid in the cylinder to escape, as all shaft connections are made above the normal level of this liquid. In addition to this, the end of the drivingshaft is equipped with a spiral gear D, which, when revolved, tends to keep all liquid away from the tubular projection within which the only outlet is enclosed. This instrument is equipped with a total mile and set-trip odometer, which feature will be appreciated by motorists.

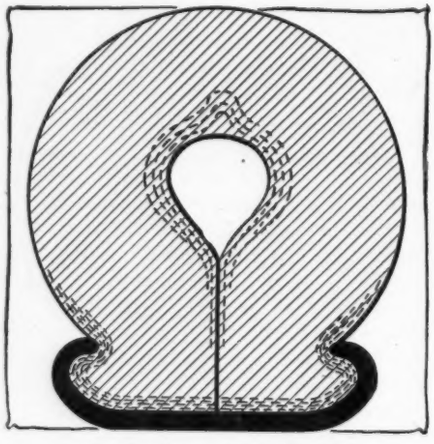


FIG. 2—THE CLEVELAND TIRE

## THE CLEVELAND TIRE

The Cleveland Puncture Proof Tire Co., Cleveland, O., manufactures the Cleveland tire, which is not a pneumatic nor yet a solid tire, but, as illustrated, consists of a body part made of para rubber, which is claimed to be so compounded as to stand up under weight. In the center is an air space in which air at atmospheric pressure is carried, there being no valve or other means to put air into this chamber. The air space is lined with layers of friction cloth, coated with rubber between the layers, this being done to prevent any tendency for the rubber to crack or break away on the inside. The tire is manufactured to fit any clincher rim, and in sizes from 26 by 2½ to 36 by 4½.

## ANTI-SELENITE DECARBONATOR

The Anti-Selenite Co., St. Louis, Mo., manufactures the anti-selenite decarbonator intended to remove carbon from the cylinder walls, pistons, piston rings or other parts of motor cars. With this decarbonizer or cleanser it is not necessary to leave it standing in the cylinder over night, but the directions are to use in the cylinders when they are cold or lukewarm, applying from 1 to 2 ounces in each cylinder, which should be enough to cover the cylinder head. This done, the crankshaft is turned over slowly by hand about twenty times, when all parts are well coated with it. Lastly, the engine is started slowly and the loosened carbon carried off with the exhaust. Anti-selenite is a semi-liquid preparation, vegetable in nature, claimed not to contain mineral acids or explosives of any nature. In action it softens the carbon, after which it is carried off as mentioned.

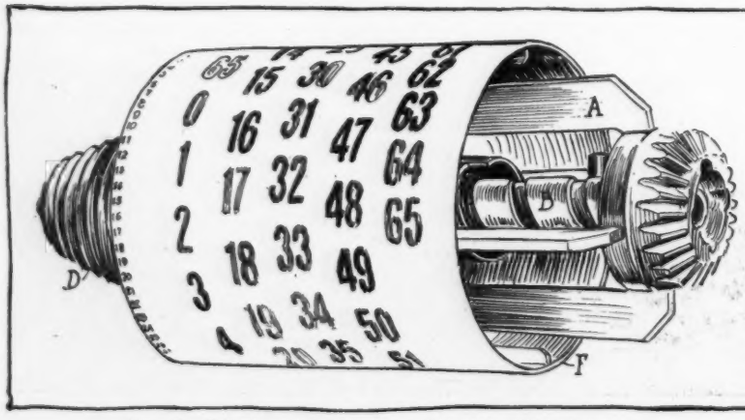



FIG. 3—REGISTERING DRUM OF CASGRAIN SPEEDOMETER

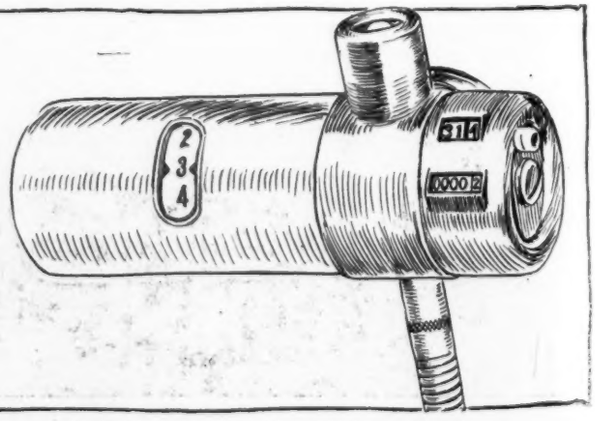



FIG. 4—EXTERIOR OF CASGRAIN SPEEDOMETER